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- (71) Applicant (for all designated States except US): HUMAN GENOME SCIENCES, INC. [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US).
- (72) Inventors; and
- (73) Inventors/Applicants (for US only): ROSEN, Craig, A. [US/US]; 22400 Rolling Hill Lane, Laytonsville, MD 20882 (US). RUBEN, Steven, M. [US/US]; 18528 Heritage Hills Drive, Olney, MD 20832 (US).
- (74) Agent: HOOVER, Kenley, K.; Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).
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(54) Title: HUMAN SECRETED PROTEINS

(57) Abstract: The present invention relates to human secreted polypeptides, and isolated nucleic acid molecules encoding said polypeptides, useful for diagnosing and treating cancer and other hyperproliferative diseases and disorders. Antibodies that bind these polypeptides are also encompassed by the present invention. Also encompassed by the invention are vectors, host cells, and recombinant and synthetic methods for producing said polynucleotides, polypeptides, and/or antibodies. The invention further encompasses screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further encompasses methods and compositions for inhibiting or enhancing the production and function of the polypeptides of the present invention.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/08123

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 38/00, 38/17

US CL : 514/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 514/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Compugen (nucleic acid and amino acid sequence databases) SEQ ID NO: 948

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/004140 A1 (HUMAN GENOME SCIENCES, INC.) 27 January 2000 (27.01.2000), pages 155-158, 202-204, and 211-213, SEQ ID NOs: 74 and 166, and the copy of the alignment attached to the reference). Instant application SEQ ID NO: 948 is encoded by reference SEQ ID NO: 74 and is 100% identical to SEQ ID NO: 166 of the reference).	1-4
Y	ADAMS et al. Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of cDNA sequences, Nature. 28 September 1995, Vol. 377 Supp., pages 3-174, see entire document and the alignment attached to the reference.	1-4

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 20 June 2003 (20.06.2003)	Date of mailing of the international search report 10 JUL 2003
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer James Martinell <i>Janice Ford</i> Telephone No. (703) 308-0196

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/08123

### Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-4 insofar as they relate to SEQ ID NO: 948.

Remark on Protest

☐  
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

**BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

Group I, claim(s) 1-4, drawn to the use of polypeptides as diagnostic or pharmaceutical compositions.

Group II, claim(s) 5 and 6, drawn to the use of antibodies as diagnostic or pharmaceutical compositions.

Group III, claim(s) 7-10, drawn to the use of polypeptides as diagnostic or pharmaceutical compositions.

Group IV, claim(s) 11 and 12, drawn to the use of agonists for preparation of pharmaceutical compositions.

Group V, claim(s) 11 and 12, drawn to the use of antagonists for preparation of pharmaceutical compositions.

Group VI, claim(s) 13, 14, 16, and 17, drawn to polypeptides.

Group VII, claim(s) 15 and 18, drawn to polypeptide binding assays.

Group VIII, claim(s) 19 and 20, drawn to antibodies.

Group IX, claim(s) 21-32, drawn to polynucleotides, vectors, and host cells.

The inventions listed as Groups I-IX do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons.

The methods of Groups I-V and VII may each be practiced independently of one another. The methods of Group I do not require the antibodies of Group VIII or the polynucleotides, vectors, or host cells of Group IX. The polypeptides of Group VI have uses other than the methods of Group I. For example, the polypeptides of Group VI may be used in affinity chromatography. The methods of Group II do not require the polypeptides of Group VI or the polynucleotides, vectors, or host cells of Group IX. The antibodies of Group VIII have uses other than the methods of Group II. For example, the antibodies of Group VIII may be used to prepare large amounts of polypeptides by affinity chromatography. The methods of Group III do not require the polypeptides of Group VI or the antibodies of Group VIII. The polynucleotides, vectors, and host cells of Group IX have uses other than the methods of Group III. For example, the polynucleotides, vectors, and host cells of Group IX may be used to produce large amounts of polypeptides. The methods of Groups IV and V do not require any of the polypeptides of Group VI, the antibodies of Group VIII or the polynucleotides, vectors, or host cells of Group IX. The polypeptides of Group VI have uses other than the binding assay of Group VII (e.g., in the production of antibodies). The polypeptides of Group VI are materially different from the antibodies of Group VIII and the polynucleotides, vectors, and host cells of Group IX. The assay of Group VII does not require the antibodies of Group VIII or the polynucleotides, vectors, or host cells of Group IX. The antibodies of Group VIII are materially different from the polynucleotides, vectors, and host cells of Group IX.

Claims 1-32 require or mention more than one unrelated, independent, and distinct (from one another) polynucleotides of polypeptides. The polynucleotides lack a common special technical feature. The polypeptides lack any common special technical feature. Applicant is required to pay additional search fees for any sequence(s) to be searched beyond the first mentioned sequence (i.e. SEQ ID NO: 948 in Group I). Any additional SEQ ID NO or domain to be searched requires one additional search fee per SEQ ID NO or domain. See MPEP 1850.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

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(71) Applicant (for all designated States except US): **HUMAN GENOME SCIENCES, INC.** [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US).

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**WO 02/102993 A2**

(54) Title: **HUMAN SECRETED PROTEINS**

(57) Abstract: The present invention relates to human secreted polypeptides, and isolated nucleic acid molecules encoding said polypeptides, useful for diagnosing and treating cancer and other hyperproliferative diseases and disorders. Antibodies that bind these polypeptides are also encompassed by the present invention. Also encompassed by the invention are vectors, host cells, and recombinant and synthetic methods for producing said polynucleotides, polypeptides, and/or antibodies. The invention further encompasses screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further encompasses methods and compositions for inhibiting or enhancing the production and function of the polypeptides of the present invention.



## Human Secreted Proteins

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### *Field of the Invention*

The present invention relates to human secreted proteins/polypeptides, and isolated nucleic acid molecules encoding said proteins/polypeptides, useful for detecting, preventing, diagnosing, prognosticating, treating, and/or ameliorating cancer and other hyperproliferative disorders. Antibodies that bind these polypeptides are also encompassed by the present invention. Also encompassed by the invention are vectors, host cells, and recombinant and synthetic methods for producing said polynucleotides, polypeptides, and/or antibodies. The invention further encompasses screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further encompasses methods and compositions for inhibiting or enhancing the production and function of the polypeptides of the present invention.

### *Background of the Invention*

Cancer and other hyperproliferative disorders are a diverse group of disorders and diseases sharing one characteristic in common; all result from uncontrolled cell proliferation. The human body is composed of many different cell types, e.g. liver cells, muscle cells, brain cells, etc. Normally, these cells grow and divide to produce more cells only as the body needs them (e.g. to regenerate blood cells or replace epithelial cells lining the stomach). Sometimes, however, cells begin to divide unchecked even though new cells are not needed. These extra cells accumulate and form a mass of tissue, called a tumor. Although each of the over 200 cell types in the body can potentially become cancerous, some cell types become cancerous at relatively high rates while many other cell types rarely become cancerous.

Tumors are either benign or malignant. Benign tumors are not cancerous; they can usually be removed, they do not spread to other parts of the body and, they rarely threaten life. Malignant tumors, however, are cancerous. Cells in malignant tumors can invade and damage nearby or distant tissues and organs. The spread of cancerous cells is called metastasis. Malignant (or metastatic) cells can invade adjacent organs by proliferating directly from the primary tumor. Additionally, malignant cells can also metastasize to distant organs by breaking away from the primary tumor, entering the bloodstream or lymphatic system, and settling down in a new organ or tissue to produce a secondary tumor. The origin of secondary tumors is established by comparing cells comprising these tumors to cells in the original (primary) tumor.

In contrast to solid organ cancers (such as cancer in the liver, lung, and brain) cancer can also develop in blood-forming cells. These cancers are referred to as leukemias or lymphomas. Leukemia refers to cancer of blood forming cells such as red blood cells, platelets, and plasma cells. Lymphomas are a subset of leukemias, primarily involving white blood cells, in which the cancerous cells originated in, or are associated with, the lymph system and lymph organs (e.g. T-lymphocytes in the lymph nodes, spleen, or thymus).

In 1999 over 1.1 million people were newly diagnosed with 23 different types of cancer. The vast majority of these cases (~75%) involved cancers of the prostate, breast, lung, colon, or urinary tract, or non-Hodgkin's lymphoma. Among the most fatal cancers are pancreatic, liver, esophageal, lung, stomach, and brain cancers, having up to 96% mortality rates depending on the specific cancer. In all, some 23 different types of cancer are expected to kill over 86,000 people each year.

Most cancers are treated with one or a combination therapies consisting of surgery, radiation therapy, chemotherapy, hormone therapy, and/or biological therapy. These five therapeutic modes are either local or systemic treatment strategies. Local treatments affect cancer cells in the tumor and immediately adjacent areas (for example, surgical tumor removal is a local treatment as are most radiation treatments). In contrast, systemic treatments travel through the bloodstream, and reach cancer and other cells all over the body. Chemotherapy, hormone therapy, and biological therapy are examples of systemic treatments.

Whether systemic or local, it is often difficult or impossible to protect healthy cells from the harmful effects of cancer treatment; healthy cells and tissues are inevitably damaged in the process of treating the cancerous cells. Damage and disruption of the normal functioning of healthy cells and tissues often produces the undesirable side effects experienced by patients undergoing cancer treatment.

Recombinant polypeptides and polynucleotides derived from naturally occurring molecules, as well as antibodies specifically targeted to these molecules, used alone or in conjunction with other existing therapies, hold great promise as improved therapeutic agents for the treatment of neoplastic disorders. Currently, most biological therapy can be classified as immunotherapy because these treatments often use naturally occurring molecules to assist the body's immune system in fighting the disease or in protecting the body from side effects of other cancer treatment(s). Among the most commonly used compounds in biological therapies are proteins called cytokines (e.g. interferons, interleukins, and colony stimulating factors) and monoclonal antibodies (targeted to particular cancer cells). Side effects caused by these commonly used biological therapies range from flu-like symptoms (chills, fever, muscle aches, weakness, loss of appetite, nausea, vomiting, and diarrhea) to rashes, swelling, easy bruising, or bleeding.



The discovery of human secreted proteins associated with initiation, progression, characterization, and/or distinction of neoplastic diseases (including antibodies that immunospecifically bind these polypeptides), satisfies a need in the art by providing new compositions useful in the detection, prevention, diagnosis, treatment, prevention, prognosis, and treatment of hyperproliferative disorders.

### *Summary of the Invention*

The present invention encompasses human secreted proteins/polypeptides, and isolated nucleic acid molecules encoding said proteins/polypeptides, useful for detecting, preventing, diagnosing, prognosticating, treating, and/or ameliorating cancer and other hyperproliferative disorders. Antibodies that bind these polypeptides are also encompassed by the present invention; as are vectors, host cells, and recombinant and synthetic methods for producing said polynucleotides, polypeptides, and/or antibodies. The invention further encompasses screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention also encompasses methods and compositions for inhibiting or enhancing the production and function of the polypeptides of the present invention.

### *Detailed Description*

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#### **Polynucleotides and Polypeptides of the Invention**

##### **Description of Table 1A**

Table 1A summarizes information concerning certain polynucleotides and polypeptides of the invention. The first column provides the gene number in the application for each clone identifier. The second column provides a unique clone identifier, "Clone ID:", for a cDNA clone related to each contig sequence disclosed in Table 1A. Third column, the cDNA Clones identified in the second column were deposited as indicated in the third column (i.e. by ATCC Deposit No:Z and deposit date). Some of the deposits contain multiple different clones corresponding to the same gene. In the fourth column, "Vector" refers to the type of vector contained in the corresponding cDNA Clone identified in the second column. In the fifth column, the nucleotide sequence identified as "NT SEQ ID NO:X" was assembled from partially homologous ("overlapping") sequences obtained from the corresponding cDNA clone identified in the second column and, in some cases, from additional related cDNA clones. The overlapping sequences were assembled into a single contiguous sequence of high redundancy (usually three to five overlapping sequences at each nucleotide position), resulting in a final sequence identified as SEQ ID NO:X. In the sixth column, "Total NT Seq." refers to the total number of nucleotides in the

contig sequence identified as SEQ ID NO:X." The deposited clone may contain all or most of these sequences, reflected by the nucleotide position indicated as "5' NT of Clone Seq." (seventh column) and the "3' NT of Clone Seq." (eighth column) of SEQ ID NO:X. In the ninth column, the nucleotide position of SEQ ID NO:X of the putative start codon (methionine) is identified as

5 "5' NT of Start Codon." Similarly, in column ten, the nucleotide position of SEQ ID NO:X of the predicted signal sequence is identified as "5' NT of First AA of Signal Pep." In the eleventh column, the translated amino acid sequence, beginning with the methionine, is identified as "AA SEQ ID NO:Y," although other reading frames can also be routinely translated using known molecular biology techniques. The polypeptides produced by these alternative open reading

10 frames are specifically contemplated by the present invention.

In the twelfth and thirteenth columns of Table 1A, the first and last amino acid position of SEQ ID NO:Y of the predicted signal peptide is identified as "First AA of Sig Pep" and "Last AA of Sig Pep." In the fourteenth column, the predicted first amino acid position of SEQ ID NO:Y of the secreted portion is identified as "Predicted First AA of Secreted Portion". The amino acid

15 position of SEQ ID NO:Y of the last amino acid encoded by the open reading frame is identified in the fifteenth column as "Last AA of ORF".

SEQ ID NO:X (where X may be any of the polynucleotide sequences disclosed in the sequence listing) and the translated SEQ ID NO:Y (where Y may be any of the polypeptide sequences disclosed in the sequence listing) are sufficiently accurate and otherwise suitable for a variety of uses well known in the art and described further below. For instance, SEQ ID NO:X is

20 useful for designing nucleic acid hybridization probes that will detect nucleic acid sequences contained in SEQ ID NO:X or the cDNA contained in the deposited clone. These probes will also hybridize to nucleic acid molecules in biological samples, thereby enabling a variety of forensic and diagnostic methods of the invention. Similarly, polypeptides identified from SEQ ID NO:Y

25 may be used, for example, to generate antibodies which bind specifically to proteins containing the polypeptides and the secreted proteins encoded by the cDNA clones identified in Table 1A and/or elsewhere herein

Nevertheless, DNA sequences generated by sequencing reactions can contain sequencing errors. The errors exist as misidentified nucleotides, or as insertions or deletions of nucleotides in

30 the generated DNA sequence. The erroneously inserted or deleted nucleotides cause frame shifts in the reading frames of the predicted amino acid sequence. In these cases, the predicted amino acid sequence diverges from the actual amino acid sequence, even though the generated DNA sequence may be greater than 99.9% identical to the actual DNA sequence (for example, one base insertion or deletion in an open reading frame of over 1000 bases).

35 Accordingly, for those applications requiring precision in the nucleotide sequence or the amino acid sequence, the present invention provides not only the generated nucleotide sequence identified as SEQ ID NO:X, and the predicted translated amino acid sequence identified as SEQ

ID NO:Y, but also a sample of plasmid DNA containing a human cDNA of the invention deposited with the ATCC, as set forth in Table 1A. The nucleotide sequence of each deposited plasmid can readily be determined by sequencing the deposited plasmid in accordance with known methods

- 5           The predicted amino acid sequence can then be verified from such deposits. Moreover, the amino acid sequence of the protein encoded by a particular plasmid can also be directly determined by peptide sequencing or by expressing the protein in a suitable host cell containing the deposited human cDNA, collecting the protein, and determining its sequence.

- Also provided in Table 1A is the name of the vector which contains the cDNA plasmid.  
10       Each vector is routinely used in the art. The following additional information is provided for convenience.

- Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., *Nucleic Acids Res.* 16:7583-7600 (1988); Alting-Mees, M. A. and Short, J. M., *Nucleic Acids Res.* 17:9494 (1989)) and pBK (Alting-Mees, M. A. et al., *Strategies* 5:58-61 (1992)) are commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road, La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene. Phagemid pBS may be excised from the Lambda Zap and Uni-Zap XR vectors, and phagemid pBK may be excised from the Zap Express vector. Both  
15       phagemids may be transformed into *E. coli* strain XL-1 Blue, also available from Stratagene

- Vectors pSport1, pCMVSPORT 1.0, pCMVSPORT 2.0 and pCMVSPORT 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, also available from Life Technologies. See, for instance, Gruber, C. E., et al., *Focus* 15:59 (1993). Vector  
25       lafmid BA (Bento Soares, Columbia University, New York, NY) contains an ampicillin resistance gene and can be transformed into *E. coli* strain XL-1 Blue. Vector pCR<sup>®</sup>2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, available from Life Technologies. See, for instance, Clark, J. M., *Nuc. Acids Res.* 16:9677-9686 (1988) and Mead, D. et al.,  
30       *Bio/Technology* 9: (1991).

- The present invention also relates to the genes corresponding to SEQ ID NO:X, SEQ ID NO:Y, and/or a deposited cDNA (cDNA Clone ID). The corresponding gene can be isolated in accordance with known methods using the sequence information disclosed herein. Such methods include, but are not limited to, preparing probes or primers from the disclosed sequence and  
35       identifying or amplifying the corresponding gene from appropriate sources of genomic material.

          Also provided in the present invention are allelic variants, orthologs, and/or species homologs. Procedures known in the art can be used to obtain full-length genes, allelic variants,

splice variants, full-length coding portions, orthologs, and/or species homologs of genes corresponding to SEQ ID NO:X and SEQ ID NO:Y using information from the sequences disclosed herein or the clones deposited with the ATCC. For example, allelic variants and/or species homologs may be isolated and identified by making suitable probes or primers from the sequences provided herein and screening a suitable nucleic acid source for allelic variants and/or the desired homologue.

The present invention provides a polynucleotide comprising, or alternatively consisting of, the nucleic acid sequence of SEQ ID NO:X and/or a cDNA contained in ATCC Deposit No.Z. The present invention also provides a polypeptide comprising, or alternatively, consisting of, the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X, and/or a polypeptide encoded by a cDNA contained in ATCC deposit No.Z. Polynucleotides encoding a polypeptide comprising, or alternatively consisting of the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X and/or a polypeptide encoded by the cDNA contained in ATCC Deposit No.Z, are also encompassed by the invention. The present invention further encompasses a polynucleotide comprising, or alternatively consisting of the complement of the nucleic acid sequence of SEQ ID NO:X, and/or the complement of the coding strand of the cDNA contained in ATCC Deposit No.Z.

#### **Description of Table 1B (Comprised of Tables 1B.1 and 1B.2)**

Table 1B.1 and Table 1B.2 summarize some of the polynucleotides encompassed by the invention (including cDNA clones related to the sequences (Clone ID:), contig sequences (contig identifier (Contig ID:)) and contig nucleotide sequence identifiers (SEQ ID NO:X)) and further summarizes certain characteristics of these polynucleotides and the polypeptides encoded thereby. The first column of Tables 1B.1 and 1B.2 provide the gene numbers in the application for each clone identifier. The second column of Tables 1B.1 and 1B.2 provide unique clone identifiers, "Clone ID:", for cDNA clones related to each contig sequence disclosed in Table 1A and/or Table 1B. The third column of Tables 1B.1 and 1B.2 provide unique contig identifiers, "Contig ID:" for each of the contig sequences disclosed in these tables. The fourth column of Tables 1B.1 and 1B.2 provide the sequence identifiers, "SEQ ID NO:X", for each of the contig sequences disclosed in Table 1A and/or 1B.

##### **Table 1B.1**

The fifth column of Table 1B.1, "ORF (From-To)", provides the location (i.e., nucleotide position numbers) within the polynucleotide sequence of SEQ ID NO:X that delineates the preferred open reading frame (ORF) that encodes the amino acid sequence shown in the sequence listing and referenced in Table 1B.1 as SEQ ID NO:Y (column 6). Column 7 of Table 1B.1 lists residues comprising predicted epitopes contained in the polypeptides encoded by each of

the preferred ORFs (SEQ ID NO:Y). Identification of potential immunogenic regions was performed according to the method of Jameson and Wolf (CABIOS, 4; 181-186 (1988)); specifically, the Genetics Computer Group (GCG) implementation of this algorithm, embodied in the program PEPTIDESTRUCTURE (Wisconsin Package v10.0, Genetics Computer Group (GCG), Madison, Wisc.). This method returns a measure of the probability that a given residue is found on the surface of the protein. Regions where the antigenic index score is greater than 0.9 over at least 6 amino acids are indicated in Table 1B.1 as "Predicted Epitopes". In particular embodiments, polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the predicted epitopes described in Table 1B.1. It will be appreciated that depending on the analytical criteria used to predict antigenic determinants, the exact address of the determinant may vary slightly. Column 8 of Table 1B.1 ("Cytologic Band") provides the chromosomal location of polynucleotides corresponding to SEQ ID NO:X. Chromosomal location was determined by finding exact matches to EST and cDNA sequences contained in the NCBI (National Center for Biotechnology Information) UniGene database. Given a presumptive chromosomal location, disease locus association was determined by comparison with the Morbid Map, derived from Online Mendelian Inheritance in Man (Online Mendelian Inheritance in Man, OMIM™. McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD) and National Center for Biotechnology Information, National Library of Medicine (Bethesda, MD) 2000. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>). If the putative chromosomal location of the Query overlaps with the chromosomal location of a Morbid Map entry, an OMIM identification number is disclosed in Table 1B.1, column 9 labeled "OMIM Disease Reference(s)". A key to the OMIM reference identification numbers is provided in Table 5.

#### Table 1B.2

Column 5 of Table 1B.2, "Tissue Distribution" shows the expression profile of tissue, cells, and/or cell line libraries which express the polynucleotides of the invention. The first code number shown in Table 1B.2 column 5 (preceding the colon), represents the tissue/cell source identifier code corresponding to the key provided in Table 4. Expression of these polynucleotides was not observed in the other tissues and/or cell libraries tested. The second number in column 5 (following the colon), represents the number of times a sequence corresponding to the reference polynucleotide sequence (e.g., SEQ ID NO:X) was identified in the corresponding tissue/cell source. Those tissue/cell source identifier codes in which the first two letters are "AR" designate information generated using DNA array technology. Utilizing this technology, cDNAs were amplified by PCR and then transferred, in duplicate, onto the array. Gene expression was assayed through hybridization of first strand cDNA probes to the DNA array. cDNA probes were generated from total RNA extracted from a variety of different tissues and cell lines. Probe synthesis was performed in the presence of <sup>33</sup>P dCTP, using oligo(dT) to prime reverse transcription. After

hybridization, high stringency washing conditions were employed to remove non-specific hybrids from the array. The remaining signal, emanating from each gene target, was measured using a Phosphorimager. Gene expression was reported as Phosphor Stimulating Luminescence (PSL) which reflects the level of phosphor signal generated from the probe hybridized to each of the gene targets represented on the array. A local background signal subtraction was performed before the total signal generated from each array was used to normalize gene expression between the different hybridizations. The value presented after "[array code]:" represents the mean of the duplicate values, following background subtraction and probe normalization. One of skill in the art could routinely use this information to identify normal and/or diseased tissue(s) which show a predominant expression pattern of the corresponding polynucleotide of the invention or to identify polynucleotides which show predominant and/or specific tissue and/or cell expression.

#### Description of Table 1C

Table 1C summarizes additional polynucleotides encompassed by the invention (including cDNA clones related to the sequences (Clone ID:), contig sequences (contig identifier (Contig ID:), contig nucleotide sequence identifiers (SEQ ID NO:X)), and genomic sequences (SEQ ID NO:B). The first column provides a unique clone identifier, "Clone ID:", for a cDNA clone related to each contig sequence. The second column provides the sequence identifier, "SEQ ID NO:X", for each contig sequence. The third column provides a unique contig identifier, "Contig ID:" for each contig sequence. The fourth column, provides a BAC identifier "BAC ID NO:A" for the BAC clone referenced in the corresponding row of the table. The fifth column provides the nucleotide sequence identifier, "SEQ ID NO:B" for a fragment of the BAC clone identified in column four of the corresponding row of the table. The sixth column, "Exon From-To", provides the location (i.e., nucleotide position numbers) within the polynucleotide sequence of SEQ ID NO:B which delineate certain polynucleotides of the invention that are also exemplary members of polynucleotide sequences that encode polypeptides of the invention (e.g., polypeptides containing amino acid sequences encoded by the polynucleotide sequences delineated in column six, and fragments and variants thereof).

#### Description of Table 1D

Table 1D: In preferred embodiments, the present invention encompasses a method of detecting, preventing, diagnosing, prognosticating, treating, and/or ameliorating cancer and other hyperproliferative disorders; comprising administering to a patient in which such treatment, prevention, or amelioration is desired a protein, nucleic acid, or antibody of the invention (or fragment or variant thereof) represented by Table 1A, Table 1B, and Table 1C, in an amount effective to detect, prevent, diagnose, prognosticate, treat, and/or ameliorate the disease or disorder.

As indicated in Table 1D, the polynucleotides, polypeptides, agonists, or antagonists of the present invention (including antibodies) can be used in assays to test for one or more biological activities. If these polynucleotides and polypeptides do exhibit activity in a particular assay, it is likely that these molecules may be involved in the diseases associated with the biological activity.

5 Thus, the polynucleotides or polypeptides, or agonists or antagonists thereof (including antibodies) could be used to treat the associated disease.

Table 1D provides information related to biological activities for polynucleotides and polypeptides of the invention (including antibodies, agonists, and/or antagonists thereof). Table 1D also provides information related to assays which may be used to test polynucleotides and  
10 polypeptides of the invention (including antibodies, agonists, and/or antagonists thereof) for the corresponding biological activities. The first column ("Gene No.") provides the gene number in the application for each clone identifier. The second column ("cDNA Clone ID:") provides the unique clone identifier for each clone as previously described and indicated in Tables 1A, 1B, and 1C. The third column ("AA SEQ ID NO:Y") indicates the Sequence Listing SEQ ID Number for  
15 polypeptide sequences encoded by the corresponding cDNA clones (also as indicated in Tables 1A, 1B, and 2). The fourth column ("Biological Activity") indicates a biological activity corresponding to the indicated polypeptides (or polynucleotides encoding said polypeptides). The fifth column ("Exemplary Activity Assay") further describes the corresponding biological activity and provides information pertaining to the various types of assays which may be performed to test,  
20 demonstrate, or quantify the corresponding biological activity. Table 1D describes the use of FMAT technology, *inter alia*, for testing or demonstrating various biological activities. Fluorometric microvolume assay technology (FMAT) is a fluorescence-based system which provides a means to perform nonradioactive cell- and bead-based assays to detect activation of cell signal transduction pathways. This technology was designed specifically for ligand binding and  
25 immunological assays. Using this technology, fluorescent cells or beads at the bottom of the well are detected as localized areas of concentrated fluorescence using a data processing system. Unbound fluorophore comprising the background signal is ignored, allowing for a wide variety of homogeneous assays. FMAT technology may be used for peptide ligand binding assays, immunofluorescence, apoptosis, cytotoxicity, and bead-based immunocapture assays. *See*,  
30 Miraglia S et. al., "Homogeneous cell and bead based assays for highthroughput screening using fluorometric microvolume assay technology," Journal of Biomolecular Screening; 4:193-204 (1999). In particular, FMAT technology may be used to test, confirm, and/or identify the ability of polypeptides (including polypeptide fragments and variants) to activate signal transduction pathways. For example, FMAT technology may be used to test, confirm, and/or identify the  
35 ability of polypeptides to upregulate production of immunomodulatory proteins (such as, for example, interleukins, GM-CSF, Rantes, and Tumor Necrosis factors, as well as other cellular regulators (e.g. insulin)).

Table 1D also describes the use of kinase assays for testing, demonstrating, or quantifying biological activity. In this regard, the phosphorylation and de-phosphorylation of specific amino acid residues (e.g. Tyrosine, Serine, Threonine) on cell-signal transduction proteins provides a fast, reversible means for activation and de-activation of cellular signal transduction pathways. Moreover, cell signal transduction via phosphorylation/de-phosphorylation is crucial to the regulation of a wide variety of cellular processes (e.g. proliferation, differentiation, migration, apoptosis, etc.). Accordingly, kinase assays provide a powerful tool useful for testing, confirming, and/or identifying polypeptides (including polypeptide fragments and variants) that mediate cell signal transduction events via protein phosphorylation. See e.g., Forrer, P., Tamaskovic R., and Jaussi, R. "Enzyme-Linked Immunosorbent Assay for Measurement of JNK, ERK, and p38 Kinase Activities" Biol. Chem. 379(8-9): 1101-1110 (1998).

#### Description of Table 1E

Polynucleotides encoding polypeptides of the present invention can be used in assays to test for one or more biological activities. One such biological activity which may be tested includes the ability of polynucleotides and polypeptides of the invention to stimulate up-regulation or down-regulation of expression of particular genes and proteins. Hence, if polynucleotides and polypeptides of the present invention exhibit activity in altering particular gene and protein expression patterns, it is likely that these polynucleotides and polypeptides of the present invention may be involved in, or capable of effecting changes in, diseases associated with the altered gene and protein expression profiles. Hence, polynucleotides, polypeptides, or antibodies of the present invention could be used to treat said associated diseases.

TaqMan® assays may be performed to assess the ability of polynucleotides (and polypeptides they encode) to alter the expression pattern of particular "target" genes. TaqMan® reactions are performed to evaluate the ability of a test agent to induce or repress expression of specific genes in different cell types. TaqMan® gene expression quantification assays ("TaqMan® assays") are well known to, and routinely performed by, those of ordinary skill in the art. TaqMan® assays are performed in a two step reverse transcription / polymerase chain reaction (RT-PCR). In the first (RT) step, cDNA is reverse transcribed from total RNA samples using random hexamer primers. In the second (PCR) step, PCR products are synthesized from the cDNA using gene specific primers.

To quantify gene expression the Taqman® PCR reaction exploits the 5' nuclease activity of AmpliTaq Gold® DNA Polymerase to cleave a Taqman® probe (distinct from the primers) during PCR. The Taqman® probe contains a reporter dye at the 5'-end of the probe and a quencher dye at the 3' end of the probe. When the probe is intact, the proximity of the reporter dye to the quencher dye results in suppression of the reporter fluorescence. During PCR, if the



target of interest is present, the probe specifically anneals between the forward and reverse primer sites. AmpliTaq Fold DNA Polymerase then cleaves the probe between the reporter and quencher when the probe hybridizes to the target, resulting in increased fluorescence of the reporter (see Figure 2). Accumulation of PCR products is detected directly by monitoring the increase in fluorescence of the reporter dye.

After the probe fragments are displaced from the target, polymerization of the strand continues. The 3'-end of the probe is blocked to prevent extension of the probe during PCR. This process occurs in every cycle and does not interfere with the exponential accumulation of product. The increase in fluorescence signal is detected only if the target sequence is complementary to the probe and is amplified during PCR. Because of these requirements, any nonspecific amplification is not detected.

For test sample preparation, vector controls or constructs containing the coding sequence for the gene of interest are transfected into cells, such as for example 293T cells, and supernatants collected after 48 hours. For cell treatment and RNA isolation, multiple primary human cells or human cell lines are used; such cells may include but are not limited to, Normal Human Dermal Fibroblasts, Aortic Smooth Muscle, Human Umbilical Vein Endothelial Cells, HepG2, Daudi, Jurkat, U937, Caco, and THP-1 cell lines. Cells are plated in growth media and growth is arrested by culturing without media change for 3 days, or by switching cells to low serum media and incubating overnight. Cells are treated for 1, 6, or 24 hours with either vector control supernatant or sample supernatant (or purified/partially purified protein preparations in buffer). Total RNA is isolated; for example, by using Trizol extraction or by using the Ambion RNeasy(RN)4PCR RNA isolation system. Expression levels of multiple genes are analyzed using TAQMAN, and expression in the test sample is compared to control vector samples to identify genes induced or repressed. Each of the above described techniques are well known to, and routinely performed by, those of ordinary skill in the art.

Table 1E indicates particular disease classes and preferred indications for which polynucleotides, polypeptides, or antibodies of the present invention may be used in detecting, diagnosing, preventing, treating and/or ameliorating said diseases and disorders based on "target" gene expression patterns which may be up- or down-regulated by polynucleotides (and the encoded polypeptides) corresponding to each indicated cDNA Clone ID (shown in Table 1E, Column 2).

Thus, in preferred embodiments, the present invention encompasses a method of detecting, diagnosing, preventing, treating, and/or ameliorating a disease or disorder listed in the "Disease Class" and/or "Preferred Indication" columns of Table 1E; comprising administering to a patient in which such detection, diagnosis, prevention, or treatment is desired a protein, nucleic acid, or antibody of the invention (or fragment or variant thereof) in an amount effective to detect, diagnose, prevent, treat, or ameliorate the disease or disorder. The first and second columns of

Table 1D show the "Gene No." and "cDNA Clone ID No.", respectively, indicating certain nucleic acids and proteins (or antibodies against the same) of the invention (including polynucleotide, polypeptide, and antibody fragments or variants thereof) that may be used in detecting, diagnosing, preventing, treating, or ameliorating the disease(s) or disorder(s) indicated in the corresponding row in the "Disease Class" or "Preferred Indication" Columns of Table 1E.

In another embodiment, the present invention also encompasses methods of detecting, diagnosing, preventing, treating, or ameliorating a disease or disorder listed in the "Disease Class" or "Preferred Indication" Columns of Table 1E; comprising administering to a patient combinations of the proteins, nucleic acids, or antibodies of the invention (or fragments or variants thereof), sharing similar indications as shown in the corresponding rows in the "Disease Class" or "Preferred Indication" Columns of Table 1E.

The "Disease Class" Column of Table 1E provides a categorized descriptive heading for diseases, disorders, and/or conditions (more fully described below) that may be detected, diagnosed, prevented, treated, or ameliorated by a protein, nucleic acid, or antibody of the invention (or fragment or variant thereof).

The "Preferred Indication" Column of Table 1E describes diseases, disorders, and/or conditions that may be detected, diagnosed, prevented, treated, or ameliorated by a protein, nucleic acid, or antibody of the invention (or fragment or variant thereof).

The "Cell Line" and "Exemplary Targets" Columns of Table 1E indicate particular cell lines and target genes, respectively, which may show altered gene expression patterns (i.e., up- or down-regulation of the indicated target gene) in Taqman assays, performed as described above, utilizing polynucleotides of the cDNA Clone ID shown in the corresponding row. Alteration of expression patterns of the indicated "Exemplary Target" genes is correlated with a particular "Disease Class" and/or "Preferred Indication" as shown in the corresponding row under the respective column headings.

The "Exemplary Accessions" Column indicates GenBank Accessions (available online through the National Center for Biotechnology Information (NCBI) at <http://www.ncbi.nlm.nih.gov/>) which correspond to the "Exemplary Targets" shown in the adjacent row.

The recitation of "Cancer" in the "Disease Class" Column indicates that the corresponding nucleic acid and protein, or antibody against the same, of the invention (or fragment or variant thereof) may be used for example, to detect, diagnose, prevent, treat, and/or ameliorate neoplastic diseases and/or disorders (e.g., leukemias, cancers, etc., as described below under "Hyperproliferative Disorders").

The recitation of "Immune" in the "Disease Class" column indicates that the corresponding nucleic acid and protein, or antibody against the same, of the invention (or fragment or variant thereof), may be used for example, to detect, diagnose, prevent, treat, and/or ameliorate

diseases and/or disorders relating to neoplastic diseases (e.g., as described below under "Hyperproliferative Disorders"), blood disorders (e.g., as described below under "Immune Activity" "Cardiovascular Disorders" and/or "Blood-Related Disorders"), and infections (e.g., as described below under "Infectious Disease").

5           The recitation of "Angiogenesis" in the "Disease Class" column indicates that the corresponding nucleic acid and protein, or antibody against the same, of the invention (or fragment or variant thereof), may be used for example, to detect, diagnose, treat, prevent, and/or ameliorate diseases and/or disorders relating to neoplastic diseases (e.g., as described below under "Hyperproliferative Disorders"), diseases and/or disorders of the cardiovascular system (e.g., as described below under "Cardiovascular Disorders"), diseases and/or disorders involving cellular and genetic abnormalities (e.g., as described below under "Diseases at the Cellular Level"), diseases and/or disorders involving angiogenesis (e.g., as described below under "Anti-Angiogenesis Activity"), to promote or inhibit cell or tissue regeneration (e.g., as described below under "Regeneration"), or to promote wound healing (e.g., as described below under "Wound Healing and Epithelial Cell Proliferation").

15           The recitation of "Diabetes" in the "Disease Class" column indicates that the corresponding nucleic acid and protein, or antibody against the same, of the invention (or fragment or variant thereof), may be used for example, to detect, diagnose, treat, prevent, and/or ameliorate diabetes (including diabetes mellitus types I and II), as well as diseases and/or disorders associated with, or consequential to, diabetes (e.g. as described below under "Endocrine Disorders," "Renal Disorders," and "Gastrointestinal Disorders").

## **Description of Table 2**

Table 2 summarizes homology and features of some of the polypeptides of the invention.

25   The first column provides a unique clone identifier, "Clone ID:", corresponding to a cDNA clone disclosed in Table 1A or Table 1B. The second column provides the unique contig identifier, "Contig ID:" corresponding to contigs in Table 1B and allowing for correlation with the information in Table 1B. The third column provides the sequence identifier, "SEQ ID NO:X", for the contig polynucleotide sequence. The fourth column provides the analysis method by which the homology/identity disclosed in the Table was determined. Comparisons were made between polypeptides encoded by the polynucleotides of the invention and either a non-redundant protein database (herein referred to as "NR"), or a database of protein families (herein referred to as "PFAM") as further described below. The fifth column provides a description of the PFAM/NR hit having a significant match to a polypeptide of the invention. Column six provides the accession number of the PFAM/NR hit disclosed in the fifth column. Column seven, "Score/Percent Identity", provides a quality score or the percent identity, of the hit disclosed in columns five and six. Columns 8 and 9, "NT From" and "NT To" respectively, delineate the

polynucleotides in "SEQ ID NO:X" that encode a polypeptide having a significant match to the PFAM/NR database as disclosed in the fifth and sixth columns. In specific embodiments polypeptides of the invention comprise, or alternatively consist of, an amino acid sequence encoded by a polynucleotide in SEQ ID NO:X as delineated in columns 8 and 9, or fragments or  
 5 variants thereof.

### Description of Table 3

Table 3 provides polynucleotide sequences that may be disclaimed according to certain embodiments of the invention. The first column provides a unique clone identifier, "Clone ID",  
 10 for a cDNA clone related to contig sequences disclosed in Table 1B. The second column provides the sequence identifier, "SEQ ID NO:X", for contig sequences disclosed in Table 1A and/or Table 1B. The third column provides the unique contig identifier, "Contig ID:", for contigs disclosed in Table 1B. The fourth column provides a unique integer 'a' where 'a' is any integer between 1 and the final nucleotide minus 15 of SEQ ID NO:X, and the fifth column provides a unique integer 'b'  
 15 where 'b' is any integer between 15 and the final nucleotide of SEQ ID NO:X, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:X, and where b is greater than or equal to a + 14. For each of the polynucleotides shown as SEQ ID NO:X, the uniquely defined integers can be substituted into the general formula of a-b, and used to describe polynucleotides which may be preferably excluded from the invention. In certain embodiments,  
 20 preferably excluded from the invention are at least one, two, three, four, five, ten, or more of the polynucleotide sequence(s) having the accession number(s) disclosed in the sixth column of this Table (including for example, published sequence in connection with a particular BAC clone). In further embodiments, preferably excluded from the invention are the specific polynucleotide sequence(s) contained in the clones corresponding to at least one, two, three, four, five, ten, or  
 25 more of the available material having the accession numbers identified in the sixth column of this Table (including for example, the actual sequence contained in an identified BAC clone).

### Description of Table 4

Table 4 provides a key to the tissue/cell source identifier code disclosed in Table 1B.2,  
 30 column 5. Column 1 of Table 4 provides the tissue/cell source identifier code disclosed in Table 1B.2, Column 5. Columns 2-5 provide a description of the tissue or cell source. Note that "Description" and "Tissue" sources (i.e. columns 2 and 3) having the prefix "a\_" indicates organs, tissues, or cells derived from "adult" sources. Codes corresponding to diseased tissues are indicated in column 6 with the word "disease." The use of the word "disease" in column 6 is non-  
 35 limiting. The tissue or cell source may be specific (e.g. a neoplasm), or may be disease-associated (e.g., a tissue sample from a normal portion of a diseased organ). Furthermore, tissues and/or cells lacking the "disease" designation may still be derived from sources directly or indirectly involved

in a disease state or disorder, and therefore may have a further utility in that disease state or disorder. In numerous cases where the tissue/cell source is a library, column 7 identifies the vector used to generate the library.

5           **Description of Table 5**

Table 5 provides a key to the OMIM reference identification numbers disclosed in Table 1B.1, column 9. OMIM reference identification numbers (Column 1) were derived from Online Mendelian Inheritance in Man (Online Mendelian Inheritance in Man, OMIM. McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD) and National Center  
10 for Biotechnology Information, National Library of Medicine, (Bethesda, MD) 2000. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>). Column 2 provides diseases associated with the cytologic band disclosed in Table 1B.1, column 8, as determined using the Morbid Map database.

**Description of Table 6**

15           Table 6 summarizes some of the ATCC Deposits, Deposit dates, and ATCC designation numbers of deposits made with the ATCC in connection with the present application. These deposits were made in addition to those described in the Table 1A.

**Description of Table 7**

20           Table 7 shows the cDNA libraries sequenced, and ATCC designation numbers and vector information relating to these cDNA libraries.

The first column shows the first four letters indicating the Library from which each library clone was derived. The second column indicates the catalogued tissue description for the corresponding libraries. The third column indicates the vector containing the corresponding  
25 clones. The fourth column shows the ATCC deposit designation for each library clone as indicated by the deposit information in Table 6.

**Definitions**

30           The following definitions are provided to facilitate understanding of certain terms used throughout this specification.

In the present invention, "isolated" refers to material removed from its original environment (e.g., the natural environment if it is naturally occurring), and thus is altered "by the hand of man" from its natural state. For example, an isolated polynucleotide could be part of a  
35 vector or a composition of matter, or could be contained within a cell, and still be "isolated" because that vector, composition of matter, or particular cell is not the original environment of the polynucleotide. The term "isolated" does not refer to genomic or cDNA libraries, whole cell total

or mRNA preparations, genomic DNA preparations (including those separated by electrophoresis and transferred onto blots), sheared whole cell genomic DNA preparations or other compositions where the art demonstrates no distinguishing features of the polynucleotide/sequences of the present invention.

5 In the present invention, a "secreted" protein refers to those proteins capable of being directed to the ER, secretory vesicles, or the extracellular space as a result of a signal sequence, as well as those proteins released into the extracellular space without necessarily containing a signal sequence. If the secreted protein is released into the extracellular space, the secreted protein can undergo extracellular processing to produce a "mature" protein. Release into the extracellular  
10 space can occur by many mechanisms, including exocytosis and proteolytic cleavage.

As used herein, a "polynucleotide" refers to a molecule having a nucleic acid sequence encoding SEQ ID NO:Y or a fragment or variant thereof (e.g., the polypeptide delineated in columns fourteen and fifteen of Table 1A); a nucleic acid sequence contained in SEQ ID NO:X (as described in column 5 of Table 1A and/or column 3 of Table 1B) or the complement thereof; a  
15 cDNA sequence contained in Clone ID: (as described in column 2 of Table 1A and/or Table 1B and contained within a library deposited with the ATCC); a nucleotide sequence encoding the polypeptide encoded by a nucleotide sequence in SEQ ID NO:B as defined in column 6 (EXON From-To) of Table 1C or a fragment or variant thereof; or a nucleotide coding sequence in SEQ ID NO:B as defined in column 6 of Table 1C or the complement thereof. For example, the  
20 polynucleotide can contain the nucleotide sequence of the full length cDNA sequence, including the 5' and 3' untranslated sequences, the coding region, as well as fragments, epitopes, domains, and variants of the nucleic acid sequence. Moreover, as used herein, a "polypeptide" refers to a molecule having an amino acid sequence encoded by a polynucleotide of the invention as broadly defined (obviously excluding poly-Phenylalanine or poly-Lysine peptide sequences which result  
25 from translation of a polyA tail of a sequence corresponding to a cDNA).

In the present invention, "SEQ ID NO:X" was often generated by overlapping sequences contained in multiple clones (contig analysis). A representative clone containing all or most of the sequence for SEQ ID NO:X is deposited at Human Genome Sciences, Inc. (HGS) in a catalogued and archived library. As shown, for example, in column 2 of Table 1B, each clone is identified by  
30 a cDNA Clone ID (identifier generally referred to herein as Clone ID:). Each Clone ID is unique to an individual clone and the Clone ID is all the information needed to retrieve a given clone from the HGS library. Table 7 provides a list of the deposited cDNA libraries. One can use the Clone ID: to determine the library source by reference to Tables 6 and 7. Table 7 lists the deposited cDNA libraries by name and links each library to an ATCC Deposit. Library names contain four  
35 characters, for example, "HTWE." The name of a cDNA clone (Clone ID) isolated from that library begins with the same four characters, for example "HTWEP07". As mentioned below, Table 1A and/or Table 1B correlates the Clone ID names with SEQ ID NO:X. Thus, starting with

an SEQ ID NO:X, one can use Tables 1A, 1B, 6, 7, and 9 to determine the corresponding Clone ID, which library it came from and which ATCC deposit the library is contained in. Furthermore, it is possible to retrieve a given cDNA clone from the source library by techniques known in the art and described elsewhere herein. The ATCC is located at 10801 University Boulevard,  
5 Manassas, Virginia 20110-2209, USA. The ATCC deposits were made pursuant to the terms of the Budapest Treaty on the international recognition of the deposit of microorganisms for the purposes of patent procedure.

In specific embodiments, the polynucleotides of the invention are at least 15, at least 30, at least 50, at least 100, at least 125, at least 500, or at least 1000 continuous nucleotides but are less  
10 than or equal to 300 kb, 200 kb, 100 kb, 50 kb, 15 kb, 10 kb, 7.5kb, 5 kb, 2.5 kb, 2.0 kb, or 1 kb, in length. In a further embodiment, polynucleotides of the invention comprise a portion of the coding sequences, as disclosed herein, but do not comprise all or a portion of any intron. In another embodiment, the polynucleotides comprising coding sequences do not contain coding sequences of a genomic flanking gene (i.e., 5' or 3' to the gene of interest in the genome). In other  
15 embodiments, the polynucleotides of the invention do not contain the coding sequence of more than 1000, 500, 250, 100, 50, 25, 20, 15, 10, 5, 4, 3, 2, or 1 genomic flanking gene(s).

A "polynucleotide" of the present invention also includes those polynucleotides capable of hybridizing, under stringent hybridization conditions, to sequences contained in SEQ ID NO:X, or the complement thereof (e.g., the complement of any one, two, three, four, or more of the  
20 polynucleotide fragments described herein), the polynucleotide sequence delineated in columns 7 and 8 of Table 1A or the complement thereof, the polynucleotide sequence delineated in columns 8 and 9 of Table 2 or the complement thereof, and/or cDNA sequences contained in Clone ID: (e.g., the complement of any one, two, three, four, or more of the polynucleotide fragments, or the cDNA clone within the pool of cDNA clones deposited with the ATCC, described herein), and/or  
25 the polynucleotide sequence delineated in column 6 of Table 1C or the complement thereof. "Stringent hybridization conditions" refers to an overnight incubation at 42 degree C in a solution comprising 50% formamide, 5x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 µg/ml denatured, sheared salmon sperm DNA, followed by washing the filters in 0.1x SSC at about 65 degree C.

Also contemplated are nucleic acid molecules that hybridize to the polynucleotides of the  
30 present invention at lower stringency hybridization conditions. Changes in the stringency of hybridization and signal detection are primarily accomplished through the manipulation of formamide concentration (lower percentages of formamide result in lowered stringency); salt conditions, or temperature. For example, lower stringency conditions include an overnight  
35 incubation at 37 degree C in a solution comprising 6X SSPE (20X SSPE = 3M NaCl; 0.2M NaH<sub>2</sub>PO<sub>4</sub>; 0.02M EDTA, pH 7.4), 0.5% SDS, 30% formamide, 100 µg/ml salmon sperm blocking DNA; followed by washes at 50 degree C with 1XSSPE, 0.1% SDS. In addition, to achieve even

lower stringency, washes performed following stringent hybridization can be done at higher salt concentrations (e.g. 5X SSC).

Note that variations in the above conditions may be accomplished through the inclusion and/or substitution of alternate blocking reagents used to suppress background in hybridization experiments. Typical blocking reagents include Denhardt's reagent, BLOTTO, heparin, denatured salmon sperm DNA, and commercially available proprietary formulations. The inclusion of specific blocking reagents may require modification of the hybridization conditions described above, due to problems with compatibility.

Of course, a polynucleotide which hybridizes only to polyA+ sequences (such as any 3' terminal polyA+ tract of a cDNA shown in the sequence listing), or to a complementary stretch of T (or U) residues, would not be included in the definition of "polynucleotide," since such a polynucleotide would hybridize to any nucleic acid molecule containing a poly (A) stretch or the complement thereof (e.g., practically any double-stranded cDNA clone generated using oligo dT as a primer).

The polynucleotide of the present invention can be composed of any polyribonucleotide or polydeoxribonucleotide, which may be unmodified RNA or DNA or modified RNA or DNA. For example, polynucleotides can be composed of single- and double-stranded DNA, DNA that is a mixture of single- and double-stranded regions, single- and double-stranded RNA, and RNA that is mixture of single- and double-stranded regions, hybrid molecules comprising DNA and RNA that may be single-stranded or, more typically, double-stranded or a mixture of single- and double-stranded regions. In addition, the polynucleotide can be composed of triple-stranded regions comprising RNA or DNA or both RNA and DNA. A polynucleotide may also contain one or more modified bases or DNA or RNA backbones modified for stability or for other reasons. "Modified" bases include, for example, tritylated bases and unusual bases such as inosine. A variety of modifications can be made to DNA and RNA; thus, "polynucleotide" embraces chemically, enzymatically, or metabolically modified forms.

In specific embodiments, the polynucleotides of the invention are at least 15, at least 30, at least 50, at least 100, at least 125, at least 500, or at least 1000 continuous nucleotides but are less than or equal to 300 kb, 200 kb, 100 kb, 50 kb, 15 kb, 10 kb, 7.5kb, 5 kb, 2.5 kb, 2.0 kb, or 1 kb, in length. In a further embodiment, polynucleotides of the invention comprise a portion of the coding sequences, as disclosed herein, but do not comprise all or a portion of any intron. In another embodiment, the polynucleotides comprising coding sequences do not contain coding sequences of a genomic flanking gene (i.e., 5' or 3' to the gene of interest in the genome). In other embodiments, the polynucleotides of the invention do not contain the coding sequence of more than 1000, 500, 250, 100, 50, 25, 20, 15, 10, 5, 4, 3, 2, or 1 genomic flanking gene(s).

"SEQ ID NO:X" refers to a polynucleotide sequence described in column 5 of Table 1A, while "SEQ ID NO:Y" refers to a polypeptide sequence described in column 10 of Table 1A. SEQ



ID NO:X is identified by an integer specified in column 6 of Table 1A. The polypeptide sequence SEQ ID NO:Y is a translated open reading frame (ORF) encoded by polynucleotide SEQ ID NO:X. The polynucleotide sequences are shown in the sequence listing immediately followed by all of the polypeptide sequences. Thus, a polypeptide sequence corresponding to polynucleotide sequence SEQ ID NO:2 is the first polypeptide sequence shown in the sequence listing. The second polypeptide sequence corresponds to the polynucleotide sequence shown as SEQ ID NO:3, and so on.

The polypeptide of the present invention can be composed of amino acids joined to each other by peptide bonds or modified peptide bonds, i.e., peptide isosteres, and may contain amino acids other than the 20 gene-encoded amino acids. The polypeptides may be modified by either natural processes, such as posttranslational processing, or by chemical modification techniques which are well known in the art. Such modifications are well described in basic texts and in more detailed monographs, as well as in a voluminous research literature. Modifications can occur anywhere in a polypeptide, including the peptide backbone, the amino acid side-chains and the amino or carboxyl termini. It will be appreciated that the same type of modification may be present in the same or varying degrees at several sites in a given polypeptide. Also, a given polypeptide may contain many types of modifications. Polypeptides may be branched, for example, as a result of ubiquitination, and they may be cyclic, with or without branching. Cyclic, branched, and branched cyclic polypeptides may result from posttranslation natural processes or may be made by synthetic methods. Modifications include acetylation, acylation, ADP-ribosylation, amidation, covalent attachment of flavin, covalent attachment of a heme moiety, covalent attachment of a nucleotide or nucleotide derivative, covalent attachment of a lipid or lipid derivative, covalent attachment of phosphatidylinositol, cross-linking, cyclization, disulfide bond formation, demethylation, formation of covalent cross-links, formation of cysteine, formation of pyroglutamate, formylation, gamma-carboxylation, glycosylation, GPI anchor formation, hydroxylation, iodination, methylation, myristoylation, oxidation, pegylation, proteolytic processing, phosphorylation, prenylation, racemization, selenoylation, sulfation, transfer-RNA mediated addition of amino acids to proteins such as arginylation, and ubiquitination. (See, for instance, *PROTEINS - STRUCTURE AND MOLECULAR PROPERTIES*, 2nd Ed., T. E. Creighton, W. H. Freeman and Company, New York (1993); *POSTTRANSLATIONAL COVALENT MODIFICATION OF PROTEINS*, B. C. Johnson, Ed., Academic Press, New York, pgs. 1-12 (1983); Seifter et al., *Meth. Enzymol.* 182:626-646 (1990); Rattan et al., *Ann. N.Y. Acad. Sci.* 663:48-62 (1992)).

"SEQ ID NO:X" refers to a polynucleotide sequence described, for example, in Tables 1A, Table 1B, or Table 2, while "SEQ ID NO:Y" refers to a polypeptide sequence described in column 11 of Table 1A and or column 6 of Table 1B.1. SEQ ID NO:X is identified by an integer specified in column 4 of Table 1B. The polypeptide sequence SEQ ID NO:Y is a translated open reading

frame (ORF) encoded by polynucleotide SEQ ID NO:X. "Clone ID:" refers to a cDNA clone described in column 2 of Table 1A and/or 1B.

"A polypeptide having functional activity" refers to a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein. Such functional activities include, but are not limited to, biological activity (e.g. activity useful in treating, preventing and/or ameliorating cancer and other hyperproliferative disorders), antigenicity (ability to bind [or compete with a polypeptide for binding] to an anti-polypeptide antibody), immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide.

The polypeptides of the invention can be assayed for functional activity (e.g. biological activity) using or routinely modifying assays known in the art, as well as assays described herein. Specifically, one of skill in the art may routinely assay secreted polypeptides (including fragments and variants) of the invention for activity using assays as described in the examples section below.

"A polypeptide having biological activity" refers to a polypeptide exhibiting activity similar to, but not necessarily identical to, an activity of a polypeptide of the present invention, including mature forms, as measured in a particular biological assay, with or without dose dependency. In the case where dose dependency does exist, it need not be identical to that of the polypeptide, but rather substantially similar to the dose-dependence in a given activity as compared to the polypeptide of the present invention (i.e., the candidate polypeptide will exhibit greater activity or not more than about 25-fold less and, preferably, not more than about tenfold less activity, and most preferably, not more than about three-fold less activity relative to the polypeptide of the present invention).

## **TABLES:**

### **Table 1A**

Table 1A summarizes information concerning certain polynucleotides and polypeptides of the invention. The first column provides the gene number in the application for each clone identifier. The second column provides a unique clone identifier, "Clone ID:", for a cDNA clone related to each contig sequence disclosed in Table 1A. Third column, the cDNA Clones identified in the second column were deposited as indicated in the third column (i.e. by ATCC Deposit No:Z and deposit date). Some of the deposits contain multiple different clones corresponding to the same gene. In the fourth column, "Vector" refers to the type of vector contained in the corresponding cDNA Clone identified in the second column. In the fifth column, the nucleotide sequence identified as "NT SEQ ID NO:X" was assembled from partially homologous ("overlapping") sequences obtained from the corresponding cDNA clone identified in the second column and, in some cases, from additional related cDNA clones. The overlapping sequences

were assembled into a single contiguous sequence of high redundancy (usually three to five overlapping sequences at each nucleotide position), resulting in a final sequence identified as SEQ ID NO:X. In the sixth column, "Total NT Seq." refers to the total number of nucleotides in the contig sequence identified as SEQ ID NO:X." The deposited clone may contain all or most of these sequences, reflected by the nucleotide position indicated as "5' NT of Clone Seq." (seventh column) and the "3' NT of Clone Seq." (eighth column) of SEQ ID NO:X. In the ninth column, the nucleotide position of SEQ ID NO:X of the putative start codon (methionine) is identified as "5' NT of Start Codon." Similarly, in column ten, the nucleotide position of SEQ ID NO:X of the predicted signal sequence is identified as "5' NT of First AA of Signal Pep." In the eleventh column, the translated amino acid sequence, beginning with the methionine, is identified as "AA SEQ ID NO:Y," although other reading frames can also be routinely translated using known molecular biology techniques. The polypeptides produced by these alternative open reading frames are specifically contemplated by the present invention.

In the twelfth and thirteenth columns of Table 1A, the first and last amino acid position of SEQ ID NO:Y of the predicted signal peptide is identified as "First AA of Sig Pep" and "Last AA of Sig Pep." In the fourteenth column, the predicted first amino acid position of SEQ ID NO:Y of the secreted portion is identified as "Predicted First AA of Secreted Portion". The amino acid position of SEQ ID NO:Y of the last amino acid encoded by the open reading frame is identified in the fifteenth column as "Last AA of ORF".

SEQ ID NO:X (where X may be any of the polynucleotide sequences disclosed in the sequence listing) and the translated SEQ ID NO:Y (where Y may be any of the polypeptide sequences disclosed in the sequence listing) are sufficiently accurate and otherwise suitable for a variety of uses well known in the art and described further below. For instance, SEQ ID NO:X is useful for designing nucleic acid hybridization probes that will detect nucleic acid sequences contained in SEQ ID NO:X or the cDNA contained in the deposited clone. These probes will also hybridize to nucleic acid molecules in biological samples, thereby enabling a variety of forensic and diagnostic methods of the invention. Similarly, polypeptides identified from SEQ ID NO:Y may be used, for example, to generate antibodies which bind specifically to proteins containing the polypeptides and the secreted proteins encoded by the cDNA clones identified in Table 1A and/or elsewhere herein

Nevertheless, DNA sequences generated by sequencing reactions can contain sequencing errors. The errors exist as misidentified nucleotides, or as insertions or deletions of nucleotides in the generated DNA sequence. The erroneously inserted or deleted nucleotides cause frame shifts in the reading frames of the predicted amino acid sequence. In these cases, the predicted amino acid sequence diverges from the actual amino acid sequence, even though the generated DNA sequence may be greater than 99.9% identical to the actual DNA sequence (for example, one base insertion or deletion in an open reading frame of over 1000 bases).

Accordingly, for those applications requiring precision in the nucleotide sequence or the amino acid sequence, the present invention provides not only the generated nucleotide sequence identified as SEQ ID NO:X, and the predicted translated amino acid sequence identified as SEQ ID NO:Y, but also a sample of plasmid DNA containing a human cDNA of the invention deposited with the ATCC, as set forth in Table 1A. The nucleotide sequence of each deposited plasmid can readily be determined by sequencing the deposited plasmid in accordance with known methods

The predicted amino acid sequence can then be verified from such deposits. Moreover, the amino acid sequence of the protein encoded by a particular plasmid can also be directly determined by peptide sequencing or by expressing the protein in a suitable host cell containing the deposited human cDNA, collecting the protein, and determining its sequence.

Also provided in Table 1A is the name of the vector which contains the cDNA plasmid. Each vector is routinely used in the art. The following additional information is provided for convenience.

Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., *Nucleic Acids Res.* 16:7583-7600 (1988); Altting-Mees, M. A. and Short, J. M., *Nucleic Acids Res.* 17:9494 (1989)) and pBK (Altting-Mees, M. A. et al., *Strategies* 5:58-61 (1992)) are commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road, La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene. Phagemid pBS may be excised from the Lambda Zap and Uni-Zap XR vectors, and phagemid pBK may be excised from the Zap Express vector. Both phagemids may be transformed into *E. coli* strain XL-1 Blue, also available from Stratagene

Vectors pSport1, pCMVSport 1.0, pCMVSport 2.0 and pCMVSport 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, also available from Life Technologies. See, for instance, Gruber, C. E., et al., *Focus* 15:59 (1993). Vector lafmid BA (Bento Soares, Columbia University, New York, NY) contains an ampicillin resistance gene and can be transformed into *E. coli* strain XL-1 Blue. Vector pCR<sup>®</sup>2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, available from Life Technologies. See, for instance, Clark, J. M., *Nuc. Acids Res.* 16:9677-9686 (1988) and Mead, D. et al., *Bio/Technology* 9: (1991).

The present invention also relates to the genes corresponding to SEQ ID NO:X, SEQ ID NO:Y, and/or a deposited cDNA (cDNA Clone ID). The corresponding gene can be isolated in accordance with known methods using the sequence information disclosed herein. Such methods

include, but are not limited to, preparing probes or primers from the disclosed sequence and identifying or amplifying the corresponding gene from appropriate sources of genomic material.

Also provided in the present invention are allelic variants, orthologs, and/or species homologs. Procedures known in the art can be used to obtain full-length genes, allelic variants, splice variants, full-length coding portions, orthologs, and/or species homologs of genes corresponding to SEQ ID NO:X and SEQ ID NO:Y using information from the sequences disclosed herein or the clones deposited with the ATCC. For example, allelic variants and/or species homologs may be isolated and identified by making suitable probes or primers from the sequences provided herein and screening a suitable nucleic acid source for allelic variants and/or the desired homologue.

The present invention provides a polynucleotide comprising, or alternatively consisting of, the nucleic acid sequence of SEQ ID NO:X and/or a cDNA contained in ATCC Deposit No.Z. The present invention also provides a polypeptide comprising, or alternatively, consisting of, the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X, and/or a polypeptide encoded by a cDNA contained in ATCC deposit No.Z. Polynucleotides encoding a polypeptide comprising, or alternatively consisting of the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X and/or a polypeptide encoded by the cDNA contained in ATCC Deposit No.Z, are also encompassed by the invention. The present invention further encompasses a polynucleotide comprising, or alternatively consisting of the complement of the nucleic acid sequence of SEQ ID NO:X, and/or the complement of the coding strand of the cDNA contained in ATCC Deposit No.Z.

Table 1A

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
1	H2CBG48	209889 05/22/98	pBluescript SK-	11	2797	1	2797	125	125	948	1	25	26	45
2	H2MAC30	209299 09/25/97	pBluescript SK-	12	459	1	459	157	157	949	1	28	29	72
3	H6EAB28	209511 12/03/97	Uni-ZAP XR	13	1939	1	1939	115	115	950	1	31	32	100
3	H6EAB28	209511 12/03/97	Uni-ZAP XR	631	1547	1	1547	116	116	1568	1	20	21	76
4	H6EDF66	209299 09/25/97	Uni-ZAP XR	14	540	1	540	146	146	951	1	27	28	131
5	HABAG37	209626 02/12/98	pSport1	15	654	1	639	97	97	952	1	31	32	62
6	HACBD91	209626 02/12/98	Uni-ZAP XR	16	1445	1	1445	117	117	953	1	42	43	49
7	HACCI17	203071 07/27/98	Uni-ZAP XR	17	1722	336	1714	461	461	954	1	24	25	218
7	HACCI17	203071 07/27/98	Uni-ZAP XR	632	1380	12	1380	135	135	1569	1	24	25	72
8	HADAO89	209423 10/30/97	pSport1	18	1453	1	1453	244	244	955	1	22	23	44

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
9	HAGA185	97922 03/07/97 209070 05/22/97	Uni-ZAP XR	19	1752	52	1752	166	166	956	1	23	24	30
10	HAGAM64	209603 01/29/98	Uni-ZAP XR	20	2321	1	2321	57	57	957	1	31	32	44
11	HAGAN21	PTA-841 10/13/99	Uni-ZAP XR	21	843	1	843	34	34	958	1	17	18	91
11	HAGAN21	PTA-841 10/13/99	Uni-ZAP XR	633	610	294	610	335	335	1570	1	17	18	91
11	HAGAN21	PTA-841 10/13/99	Uni-ZAP XR	634	659	1	659		452	1571	1			4
11	HAGAN21	PTA-841 10/13/99	Uni-ZAP XR	635	189	1	189		146	1572	1	13	14	14
11	HAGAN21	PTA-841 10/13/99	Uni-ZAP XR	636	637	1	637		321	1573	1			6
12	HAGBZ81	209118 06/12/97	Uni-ZAP XR	22	1382	24	1382		65	959	1	30	31	49
13	HAGDG59	209277 09/18/97	Uni-ZAP XR	23	1734	44	1717	124	124	960	1	18	19	300
14	HAGDI35	209852 05/07/98	Uni-ZAP XR	24	1357	1	1338	318	318	961	1	25	26	93
15	HAGFG51	203364 10/19/98	Uni-ZAP XR	25	1313	1	1313	163	163	962	1	23	24	43
16	HAGFI62	209782 04/20/98	Uni-ZAP XR	26	1003	368	992	429	429	963	1	28	29	91

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
17	HAGFY16	97923 03/07/97 209071 05/22/97	Uni-ZAP XR	27	1963	209	1922	251	251	964	1	28	29	198
17	HAGFY16	97923 03/07/97 209071 05/22/97	Uni-ZAP XR	637	1830	87	1786	128	128	1574	1	26	27	45
18	HAHDB16	209626 02/12/98	Uni-ZAP XR	28	796	1	796	93	93	965	1	20	21	50
19	HAHDR32	209626 02/12/98	Uni-ZAP XR	29	1256	365	1256	435	435	966	1	25	26	181
20	HAIBO71	209145 07/17/97	Uni-ZAP XR	30	752	172	752	325	325	967	1	28	29	66
21	HAIBP89	209877 05/18/98	Uni-ZAP XR	31	2243	173	2243	311	311	968	1	27	28	317
21	HAIBP89	209877 05/18/98	Uni-ZAP XR	638	1025	1	1025		1	1575	1	1	2	18
22	HAICP19	209009 04/28/97	Uni-ZAP XR	32	1624	89	1483	128	128	969	1	18	19	446
23	HAIFL18	209852 05/07/98	Uni-ZAP XR	33	879	1	879	274	274	970	1	29	30	140
24	HAJAF57	203364 10/19/98	pCMV Sport 3.0	34	2761	1	2761	43	43	971	1	1	2	94
25	HAJBR69	209626 02/12/98	pCMV Sport 3.0	35	755	1	755	262	262	972	1	19	20	53



Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
26	HABZ75	209603 01/29/98	pCMVSPORT 3.0	36	2089	10	2085	49	49	973	1	22	23	607
27	HAMFK58	209641 02/25/98	pCMVSPORT 3.0	37	785	1	785	279	279	974	1	31	32	79
28	HAMGG68	209878 05/18/98	pCMVSPORT 3.0	38	1458	1	1458	312	312	975	1	20	21	55
29	HANGG89	PTA-1543 03/21/00	pSport1	39	2657	348	2398	520	520	976	1	1	2	52
29	HANGG89	PTA-1543 03/21/00	pSport1	639	2454	1	2454	125	125	1576	1	23	24	98
29	HANGG89	PTA-1543 03/21/00	pSport1	640	1775	1	1775	70	70	1577	1	29	30	392
29	HANGG89	PTA-1543 03/21/00	pSport1	641	1379	1	1379	78	78	1578	1	26	27	434
30	HAPBS03	209651 03/04/98	Uni-ZAP XR	40	1503	45	1479	252	252	977	1	28	29	41
31	HAPNY86	209511 12/03/97	Uni-ZAP XR	41	1280	1	1280	100	100	978	1	25	26	129
32	HAPNY94	209889 05/22/98	Uni-ZAP XR	42	742	1	742	94	94	979	1	29	30	50
33	HAPPW30	209683 03/20/98	Uni-ZAP XR	43	1472	1	1472	59	59	980	1	22	23	264
33	HAPPW30	209683 03/20/98	Uni-ZAP XR	642	1508	14	1501	54	54	1579	1	22	23	91
34	HAPQT22	203070 07/27/98	Uni-ZAP XR	44	635	1	635	132	132	981	1	17	18	72

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
35	HAPUC89	203570 01/11/99	Uni-ZAP XR	45	1153	1	1153	385	385	982	1	25	26	140
36	HASAV70	97923 03/07/97 209071 05/22/97	Uni-ZAP XR	46	729	1	729	94	94	983	1	20	21	110
36	HASAV70	97923 03/07/97 209071 05/22/97	Uni-ZAP XR	643	1412	10	733	103	103	1580	1	20	21	110
37	HASCG84	209568 01/06/98	Uni-ZAP XR	47	1079	1	1079	216	216	984	1	32	33	53
38	HATAC53	209651 03/04/98	Uni-ZAP XR	48	1959	1	1959	97	97	985	1	21	22	248
38	HATAC53	209651 03/04/98	Uni-ZAP XR	644	1306	13	1306	99	99	1581	1	21	22	189
39	HATBR65	209626 02/12/98	Uni-ZAP XR	49	812	1	812	252	252	986	1	16	17	64
40	HATCB92	209683 03/20/98	Uni-ZAP XR	50	1756	1	1756	247	247	987	1	37	38	56
41	HATCP77	209965 06/11/98	Uni-ZAP XR	51	2098	1	2098	37	37	988	1	21	22	182
42	HATEE46	209407 10/23/97	Uni-ZAP XR	52	1675	136	863	241	241	989	1	21	22	53
43	HBAFJ33	209603 01/29/98	pSport1	53	1280	1	1252	60	60	990	1	15	16	110

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
44	HBAFV19	PTA-1543 03/21/00	pSport1	54	953	1	953	6	6	991	1	1	2	258
45	HBAMB34	209324 10/02/97	pSport1	55	1027	1	1027	87	87	992	1	35	36	48
46	HBCPB32	PTA-2075 06/09/00	pSport1	56	1368	1	1368	88	88	993	1	37	38	202
46	HBCPB32	PTA-2075 06/09/00	pSport1	645	729	1	729	89	89	1582	1	37	38	196
47	HBCQL32	PTA-2075 06/09/00	pSport1	57	402	1	402	26	26	994	1	20	21	80
47	HBCQL32	PTA-2075 06/09/00	pSport1	646	1180	741	1180	760	760	1583	1	20	21	80
48	HBGNU56	PTA-2073 06/09/00	Uni-ZAP XR	58	864	1	864	125	125	995	1	21	22	185
48	HBGNU56	PTA-2073 06/09/00	Uni-ZAP XR	647	941	1	941	79	79	1584	1	21	22	178
48	HBGNU56	PTA-2073 06/09/00	Uni-ZAP XR	648	988	804	853		2	1585	1	1	2	219
49	HBHAD12	209009 04/28/97	Uni-ZAP XR	59	786	1	786		176	996	1	17	18	23
50	HBHMA23	209782 04/20/98	pSport1	60	1175	2	1175	71	71	997	1	24	25	197
50	HBHMA23	209782 04/20/98	pSport1	649	1172	1	1172	70	70	1586	1	24	25	76
51	HBIMB51	209683 03/20/98	pCMV Sport 3.0	61	537	1	537	98	98	998	1	21	22	146

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
51	HBIMB51	209683 03/20/98	pCMVSPORT 3.0	650	526	1	526	93	93	1587	1	21	22	130
52	HBINS58	PTA-885 10/28/99	pCMVSPORT 3.0	62	843	1	843	57	57	999	1	30	31	174
52	HBINS58	PTA-885 10/28/99	pCMVSPORT 3.0	651	1566	1	1566	71	71	1588	1	29	30	173
52	HBINS58	PTA-885 10/28/99	pCMVSPORT 3.0	652	1067	1	1067	100	100	1589	1	29	30	210
53	HBIFU48	209125 06/19/97	Uni-ZAP XR	63	849	1	849	20	20	1000	1	39	40	40
54	HBJY92	203071 07/27/98	Uni-ZAP XR	64	2434	487	2366	548	548	1001	1	29	30	40
55	HBJLC01	209651 03/04/98	Uni-ZAP XR	65	872	1	872	87	87	1002	1	34	35	46
56	HBJLF01	209877 05/18/98	Uni-ZAP XR	66	1932	201	1931	217	217	1003	1	46	47	244
57	HBJLH40	203499 12/01/98	Uni-ZAP XR	67	1853	1	1853	74	74	1004	1	30	31	74
58	HBINC59	PTA-622 09/02/99	Uni-ZAP XR	68	1061	1	1061	66	66	1005	1	22	23	245
58	HBINC59	PTA-622 09/02/99	Uni-ZAP XR	653	1021	1	1021	66	66	1590	1	22	23	99
58	HBINC59	PTA-622 09/02/99	Uni-ZAP XR	654	1086	1	1023	64	64	1591	1	22	23	245

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
59	HBMC150	97978 03/27/97 209075 05/22/97	pBluescript	69	920	1	920	156	156	1006	1	29	30	83
60	HBNAW17	209242 09/12/97	Uni-ZAP XR	70	601	1	601	77	77	1007	1	37	38	61
61	HBOEG11	PTA-2072 06/09/00	pSport1	71	1356	1	1356	57	57	1008	1	22	23	250
61	HBOEG11	PTA-2072 06/09/00	pSport1	655	1352	1	1352	53	53	1592	1	22	23	250
61	HBOEG11	PTA-2072 06/09/00	pSport1	656	1337	1	1289	47	47	1593	1	22	23	250
62	HBOEG69	203081 07/30/98	pSport1	72	1411	1	1411	302	302	1009	1	19	20	54
63	HBXFL29	203858 03/18/99	ZAP Express	73	2229	376	2210	560	560	1010	1	31	32	57
64	HCACU58	209626 02/12/98	Uni-ZAP XR	74	1554	1	1554	137	137	1011	1	30	31	83
65	HCACV51	209551 12/12/97	Uni-ZAP XR	75	2083	1	2083	168	168	1012	1	31	32	81
65	HCACV51	209551 12/12/97	Uni-ZAP XR	657	2092	1	2092	173	173	1594	1	31	32	281
66	HCDAF84	209300 09/25/97	Uni-ZAP XR	76	427	1	427	168	168	1013	1	18	19	56
67	HCE1Q89	209242 09/12/97	Uni-ZAP XR	77	863	1	863	74	74	1014	1	17	18	88

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
68	HCE2F54	209626 02/12/98	Uni-ZAP XR	78	1276	19	1256	166	166	1015	1	19	20	319
69	HCEFB80	PTA-2069 06/09/00	Uni-ZAP XR	79	2494	1	2494	12	12	1016	1	35	36	89
69	HCEFB80	PTA-2069 06/09/00	Uni-ZAP XR	658	2494	1	2451	5	5	1595	1	35	36	89
70	HCEGR33	209090 06/05/97	Uni-ZAP XR	80	1630	1	1630	243	243	1017	1	18	19	31
71	HCEMP62	209745 04/07/98	Uni-ZAP XR	81	1860	269	1726	352	352	1018	1	30	31	187
71	HCEMP62	209745 04/07/98	Uni-ZAP XR	659	1957	582	1823	19	19	1596	1	33	34	335
72	HCENK38	209651 03/04/98	Uni-ZAP XR	82	1509	1	1509	10	10	1019	1	28	29	52
73	HCEWE17	PTA-842 10/13/99	Uni-ZAP XR	83	967	1	967	117	117	1020	1	23	24	106
73	HCEWE17	PTA-842 10/13/99	Uni-ZAP XR	660	730	247	730	500	500	1597	1	19	20	27
73	HCEWE17	PTA-842 10/13/99	Uni-ZAP XR	661	550	1	550		156	1598	1	1	2	54
74	HCEWE20	209300 09/25/97	Uni-ZAP XR	84	885	13	885	166	166	1021	1	18	19	51
75	HCFCU88	209324 10/02/97	pSport1	85	853	1	853	217	217	1022	1	18	19	97
76	HCFMV71	209242 09/12/97	pSport1	86	400	1	400	31	31	1023	1	24	25	58

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
77	HCFNN01	209086 05/29/97	pSport1	87	1261	154	1261	254	254	1024	1	27	28	43
78	HCFOM18	209324 10/02/97	pSport1	88	639	1	639	28	28	1025	1	20	21	63
79	HCHNF25	209651 03/04/98	pSport1	89	3576	1	3576	1130	1130	1026	1	30	31	169
79	HCHNF25	209651 03/04/98	pSport1	662	807	1	807	180	180	1599	1	30	31	147
80	HCMSEQ56	209877 05/18/98	Uni-ZAP XR	90	1262	1	1262	148	148	1027	1	19	20	88
81	HCMST14	209346 10/09/97	Uni-ZAP XR	91	614	1	614	136	136	1028	1	24	25	47
82	HCMTB45	209368 10/16/97	Uni-ZAP XR	92	958	1	958	215	215	1029	1	20	21	123
82	HCMTB45	209368 10/16/97	Uni-ZAP XR	663	946	1	946	209	209	1600	1	27	28	70
83	HCNSB61	209242 09/12/97	pBluescript	93	712	1	712	218	218	1030	1	21	22	43
84	HCNSD93	209627 02/12/98	pBluescript	94	1106	1	1106	139	139	1031	1	21	22	46
85	HCNSM70	209580 01/14/98	pBluescript	95	1089	1	1089	107	107	1032	1	26	27	215
85	HCNSM70	209580 01/14/98	pBluescript	664	1145	62	1145	161	161	1601	1	26	27	91
86	HCOOS80	PTA-2076 06/09/00	pSport1	96	1254	1	1254	36	36	1033	1	26	27	158

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
86	HCOOS80	PTA-2076 06/09/00	pSport1	665	869	15	869	40	40	1602	1	26	27	158
86	HCOOS80	PTA-2076 06/09/00	pSport1	666	692	339	506		1	1603	1	1	2	106
87	HCUBS50	209215 08/21/97	ZAP Express	97	865	1	865	88	88	1034	1	34	35	38
88	HCUCK44	209853 05/07/98	ZAP Express	98	1139	573	1133	593	593	1035	1	30	31	60
89	HCUEO60	209215 08/21/97	ZAP Express	99	1222	1	1222	102	102	1036	1	34	35	64
90	HCUHK65	209641 02/25/98	ZAP Express	100	367	1	367	80	80	1037	1	26	27	79
90	HCUHK65	209641 02/25/98	ZAP Express	667	3113	2577	2946	770	770	1604	1	30	31	708
91	HCUIM65	209324 10/02/97	ZAP Express	101	875	331	736	557	557	1038	1	27	28	47
92	HCWEB58	PTA-883 10/28/99	ZAP Express	102	1283	1	1283	148	148	1039	1	27	28	343
92	HCWEB58	PTA-883 10/28/99	ZAP Express	668	980	1	980	247	247	1605	1	27	28	244
92	HCWEB58	PTA-883 10/28/99	ZAP Express	669	888	1	888	155	155	1606	1	27	28	244
93	HCWGU37	PTA-883 10/28/99	ZAP Express	103	2777	1	2777	194	194	1040	1			10
93	HCWGU37	PTA-883 10/28/99	ZAP Express	670	1651	1	1651	187	187	1607	1			10



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
94	HCWKC15	209324 10/02/97	ZAP Express	104	710	1	710	37	37	1041	1	18	19	40
95	HCWLD74	209626 02/12/98	ZAP Express	105	1540	1	1540	138	138	1042	1	21	22	65
96	HCWUM50	209627 02/12/98	ZAP Express	106	1428	208	1428	270	270	1043	1	30	31	45
97	HCYBG92	209563 12/18/97	pBluescript SK-	107	3061	1	2661	118	118	1044	1	21	22	274
98	HDABR72	209965 06/11/98	pSport1	108	1691	1	1691	33	33	1045	1	29	30	146
98	HDABR72	209965 06/11/98	pSport1	671	1746	1	1746	28	28	1608	1	29	30	146
99	HDHEB60	209215 08/21/97	pCMVSPORT 2.0	109	1421	235	1421	568	568	1046	1	24	25	108
100	HDHIA94	209627 02/12/98	pCMVSPORT 2.0	110	1489	1	1489	154	154	1047	1	30	31	168
100	HDHIA94	209627 02/12/98	pCMVSPORT 2.0	672	2492	1	2492	163	163	1609	1	30	31	48
101	HDHMA72	209324 10/02/97	pCMVSPORT 2.0	111	4463	216	2158	287	287	1048	1	36	37	315
102	HDLAC10	209745 04/07/98	pCMVSPORT 2.0	112	1477	1	1477	132	132	1049	1	29	30	81
103	HDLAO28	PTA-499 08/11/99	pCMVSPORT 2.0	113	1984	1	1984	259	259	1050	1	21	22	76
104	HDPBI32	209853 05/07/98	pCMVSPORT 3.0	114	1513	1	1513	37	37	1051	1	315	316	316

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
104	HDPBI32	209853 05/07/98	pCMVSPORT 3.0	673	1579	598	1184	103	103	1610	1	30	31	271
104	HDPBI32	209853 05/07/98	pCMVSPORT 3.0	674	587	1	587	51	51	1611	1	35	36	138
105	HDPBQ71	209877 05/18/98	pCMVSPORT 3.0	115	2312	1	2312	93	93	1052	1	33	34	612
105	HDPBQ71	209877 05/18/98	pCMVSPORT 3.0	675	2242	6	2242	24	24	1612	1	33	34	612
105	HDPBQ71	209877 05/18/98	pCMVSPORT 3.0	676	2381	146	2381	165	165	1613	1	33	34	456
106	HDPJC91	209877 05/18/98	pCMVSPORT 3.0	116	6107	1	6107	131	131	1053	1	28	29	51
107	HDPCCO25	209125 06/19/97	pCMVSPORT 3.0	117	767	76	767	182	182	1054	1	20	21	53
108	HDPCCY37	209568 01/06/98	pCMVSPORT 3.0	118	1932	45	1932	76	76	1055	1	21	22	578
108	HDPCCY37	209568 01/06/98	pCMVSPORT 3.0	677	1931	45	1931	76	76	1614	1	21	22	264
109	HDPFB02	PTA-622 09/02/99	pCMVSPORT 3.0	119	3436	1	3436	173	173	1056	1	19	20	152
109	HDPFB02	PTA-622 09/02/99	pCMVSPORT 3.0	678	1517	1	1517	139	139	1615	1	28	29	316
109	HDPFB02	PTA-622 09/02/99	pCMVSPORT 3.0	679	2751	1976	2751	218	218	1616	1	18	19	302
110	HDPFF39	209511 12/03/97	pCMVSPORT 3.0	120	1256	1	1256	175	175	1057	1	18	19	196

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
111	HDPFP29	209626 02/12/98	pCMVSPORT 3.0	121	1057	1	1057	293	293	1058	1	30	31	52
112	HDPGI49	203070 07/27/98	pCMVSPORT 3.0	122	2683	1	2640	266	266	1059	1	29	30	72
113	HDPGP94	203364 10/19/98	pCMVSPORT 3.0	123	3881	1	3881	256	256	1060	1	18	19	74
114	HDPHI51	209125 06/19/97	pCMVSPORT 3.0	124	728	1	728	245	245	1061	1	30	31	40
115	HDPJF37	209852 05/07/98	pCMVSPORT 3.0	125	986	1	986	196	196	1062	1	23	24	57
116	HDPMM88	PTA-848 10/13/99	pCMVSPORT 3.0	126	4893	1	4893	100	100	1063	1	37	38	937
116	HDPMM88	PTA-848 10/13/99	pCMVSPORT 3.0	680	468	1	468	141	141	1617	1	20	21	109
116	HDPMM88	PTA-848 10/13/99	pCMVSPORT 3.0	681	181	1	181		44	1618	1	7	8	46
116	HDPMM88	PTA-848 10/13/99	pCMVSPORT 3.0	682	612	1	612		419	1619	1			6
116	HDPMM88	PTA-848 10/13/99	pCMVSPORT 3.0	683	1024	1	1024		111	1620	1	5	6	11
116	HDPMM88	PTA-848 10/13/99	pCMVSPORT 3.0	684	366	18	321		167	1621	1	1	2	56
116	HDPMM88	PTA-848 10/13/99	pCMVSPORT 3.0	685	519	1	519		28	1622	1	1	2	53
117	HDPNC61	209627 02/12/98	pCMVSPORT 3.0	127	1410	1	1410	20	20	1064	1	22	23	94

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
118	HDPND46	209627 02/12/98	pCMVSPORT 3.0	128	1727	1	1727	15	15	1065	1	22	23	484
119	HDPOE32	PTA-622 09/02/99	pCMVSPORT 3.0	129	1353	1	1353	118	118	1066	1	34	35	151
120	HDPOH06	209745 04/07/98	pCMVSPORT 3.0	130	2504	1	2504	252	252	1067	1	29	30	242
121	HDPOZ56	209889 05/22/98	pCMVSPORT 3.0	131	1905	1	1905	91	91	1068	1	21	22	567
121	HDPOZ56	209889 05/22/98	pCMVSPORT 3.0	686	1867	415	1867	103	103	1623	1	21	22	566
121	HDPOZ56	209889 05/22/98	pCMVSPORT 3.0	687	1722	1	1722	59	59	1624	1	21	22	319
122	HDPSP54	209782 04/20/98	pCMVSPORT 3.0	132	3091	2304	3091	2356	2356	1069	1	18	19	48
122	HDPSP54	209782 04/20/98	pCMVSPORT 3.0	688	536	1	536	179	179	1625	1	41	42	55
123	HDPTD15	209782 04/20/98	pCMVSPORT 3.0	133	1396	1	1396	223	223	1070	1	18	19	200
124	HDPTK41	209965 06/11/98	pCMVSPORT 3.0	134	1564	1	1564	39	39	1071	1	26	27	369
125	HDPUH50	209745 04/07/98	pCMVSPORT 3.0	135	1734	1	1734	22	22	1072	1	34	35	526
126	HDPUH26	PTA-163 06/01/99	pCMVSPORT 3.0	136	2916	1	2916	90	90	1073	1	18	19	549
127	HDPW68	203331 10/08/98	pCMVSPORT 3.0	137	1748	1	1748	40	40	1074	1	18	19	467

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
128	HDPVH60	203105 08/13/98	pCMVSPORT 3.0	138	3116	1	3100	8	8	1075	1	45	46	51
129	HDPVW11	PTA-869 10/26/99	pCMVSPORT 3.0	139	2339	1	2339	67	67	1076	1	28	29	455
129	HDPVW11	PTA-869 10/26/99	pCMVSPORT 3.0	689	397	1	397	50	50	1626	1	28	29	99
130	HDPWN93	PTA-868 10/26/99	pCMVSPORT 3.0	140	2679	1	2669	45	45	1077	1	19	20	802
130	HDPWN93	PTA-868 10/26/99	pCMVSPORT 3.0	690	716	1	716	35	35	1627	1	19	20	214
130	HDPWN93	PTA-868 10/26/99	pCMVSPORT 3.0	691	2716	26	2716	27	27	1628	1	19	20	43
131	HDPWU34	209782 04/20/98	pCMVSPORT 3.0	141	1277	860	1277	117	117	1078	1	23	24	325
131	HDPWU34	209782 04/20/98	pCMVSPORT 3.0	692	427	1	427	111	111	1629	1	16	17	44
132	HDQHD03	203570 01/11/99	pCMVSPORT 3.0	142	1266	1	1266	274	274	1079	1	20	21	331
132	HDQHD03	203570 01/11/99	pCMVSPORT 3.0	693	1257	1	1257	259	259	1630	1	20	21	333
133	HDTBD53	PTA-848 10/13/99	pCMVSPORT 2.0	143	2803	1	2803	288	288	1080	1	22	23	365
133	HDTBD53	PTA-848 10/13/99	pCMVSPORT 2.0	694	3302	1	2718	292	292	1631	1	22	23	365
134	HDTBP04	209300 09/25/97	pCMVSPORT 2.0	144	961	1	961	70	70	1081	1	15	16	219

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
134	HDTBP04	209300 09/25/97	pCMVSPORT 2.0	695	959	1	959	65	65	1632	1	15	16	220
135	HDTDQ23	209965 06/11/98	pCMVSPORT 2.0	145	2207	1	2207	132	132	1082	1	20	21	56
135	HDTDQ23	209965 06/11/98	pCMVSPORT 2.0	696	2227	1	2206	148	148	1633	1	20	21	108
135	HDTDQ23	209965 06/11/98	pCMVSPORT 2.0	697	2214	1	2206	148	148	1634	1	20	21	73
136	HDTTEK44	PTA-867 10/26/99	pCMVSPORT 2.0	146	2070	20	2070		691	1083	1	12	13	83
136	HDTTEK44	PTA-867 10/26/99	pCMVSPORT 2.0	698	1005	1	1005	175	175	1635	1	17	18	67
136	HDTTEK44	PTA-867 10/26/99	pCMVSPORT 2.0	699	2988	1	2988	116	116	1636	1	17	18	67
136	HDTTEK44	PTA-867 10/26/99	pCMVSPORT 2.0	700	2052	2	2052		673	1637	1	12	13	83
137	HDTTEN81	209463 11/14/97	pCMVSPORT 2.0	147	566	1	566	114	114	1084	1	17	18	85
138	HDTFE17	PTA-868 10/26/99	pCMVSPORT 2.0	148	1242	1	1242	260	260	1085	1	20	21	29
138	HDTFE17	PTA-868 10/26/99	pCMVSPORT 2.0	701	628	1	628	251	251	1638	1	20	21	29
138	HDTFE17	PTA-868 10/26/99	pCMVSPORT 2.0	702	923	29	903		101	1639	1	6	7	80
139	HDTGC73	209627 02/12/98	pCMVSPORT 2.0	149	712	1	712	386	386	1086	1	31	32	49

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
140	HDTIT10	203570 01/11/99	pCMVSPORT 2.0	150	1200	1	813	58	58	1087	1	56	57	297
140	HDTIT10	203570 01/11/99	pCMVSPORT 2.0	703	1159	1	805	161	161	1640	1	30	31	56
141	HDTMK50	PTA-884 10/28/99	pCMVSPORT 2.0	151	1352	1	1352	154	154	1088	1	21	22	51
141	HDTMK50	PTA-884 10/28/99	pCMVSPORT 2.0	704	912	1	912	164	164	1641	1	21	22	51
141	HDTMK50	PTA-884 10/28/99	pCMVSPORT 2.0	705	321	1	321		200	1642	1			1
142	HE2DY70	209877 05/18/98	Uni-ZAP XR	152	639	1	639	137	137	1089	1	45	46	58
143	HE2EB74	209225 08/28/97	Uni-ZAP XR	153	1434	311	1418	507	507	1090	1	15	16	19
144	HE2EN04	209300 09/25/97	Uni-ZAP XR	154	370	1	370	57	57	1091	1	16	17	50
145	HE2FV03	97955 03/13/97 209074 05/22/97	Uni-ZAP XR	155	2067	1	1251	116	116	1092	1	21	22	42
146	HE2NV57	209877 05/18/98	Uni-ZAP XR	156	867	1	867	99	99	1093	1	36	37	99
147	HE2PD49	209627 02/12/98	Uni-ZAP XR	157	1422	257	1404	337	337	1094	1	18	19	171
148	HE2PY40	209965 06/11/98	Uni-ZAP XR	158	1288	1	1288	147	147	1095	1	22	23	83

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
149.	HE6EU50	97975 04/04/97 209081 05/29/97	Uni-ZAP XR	159	1152	117	686	237	237	1096	1	20	21	34
150	HE8DS15	PTA-1544 03/21/00	Uni-ZAP XR	160	2199	1	2199	91	91	1097	1	24	25	72
151	HE8MH91	209603 01/29/98	Uni-ZAP XR	161	1761	1	1761	63	63	1098	1	23	24	116
152	HE8QV67	PTA-2072 06/09/00	Uni-ZAP XR	162	1999	643	1999	502	502	1099	1	49	50	80
152	HE8QV67	PTA-2072 06/09/00	Uni-ZAP XR	706	2342	1956	2276		256	1643	1	1	2	415
153	HE9BK23	209683 03/20/98	Uni-ZAP XR	163	1636	1	1636	39	39	1100	1	21	22	309
154	HE9CP41	209368 10/16/97	Uni-ZAP XR	164	1392	1	1392	132	132	1101	1	20	21	41
155	HE9DG49	97923 03/07/97 209071 05/22/97	Uni-ZAP XR	165	717	1	717	70	70	1102	1	28	29	201
155	HE9DG49	97923 03/07/97 209071 05/22/97	Uni-ZAP XR	707	717	1	717	70	70	1644	1	27	28	201



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
155	HE9DG49	97923 03/07/97 209071 05/22/97	Uni-ZAP XR	708	713	17	713	78	78	1645	1	28	29	203
156	HE9HY07	209010 04/28/97 209085 05/29/97	Uni-ZAP XR	166	832	1	832	35	35	1103	1	26	27	41
157	HE9NN84		Uni-ZAP XR	167	734	1	734	380	380	1104	1	38	39	53
158	HE9OW20	203570 01/11/99	Uni-ZAP XR	168	1209	1	1209	129	129	1105	1	33	34	355
158	HE9OW20	203570 01/11/99	Uni-ZAP XR	709	1165	1	1165	136	136	1646	1	30	31	313
158	HE9OW20	203570 01/11/99	Uni-ZAP XR	710	1160	1	1160	129	129	1647	1	30	31	134
159	HE9RM63	PTA-499 08/11/99	Uni-ZAP XR	169	2149	1	2149	82	82	1106	1	27	28	354
160	HEAAR07	209346 10/09/97	Uni-ZAP XR	170	1084	1	1084	48	48	1107	1	31	32	42
161	HEBAE88	209242 09/12/97	Uni-ZAP XR	171	582	1	582	160	160	1108	1	26	27	42
162	HEBBN36	209141 07/09/97	Uni-ZAP XR	172	1046	470	1046	645	645	1109	1	29	30	53
163	HEBCM63	209141 07/09/97	Uni-ZAP XR	173	558	1	558	246	246	1110	1	26	27	68

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
164	HEBEJ18	203069 07/27/98	Uni-ZAP XR	174	685	7	649	51	51	1111	1	15	16	139
165	HEEAG23	209745 04/07/98	Uni-ZAP XR	175	1669	25	1280	57	57	1112	1	18	19	46
166	HEEAJ02	209627 02/12/98	Uni-ZAP XR	176	1038	148	1037	387	387	1113	1	40	41	125
167	HEEAQ11	203071 07/27/98	Uni-ZAP XR	177	921	1	921	213	213	1114	1	28	29	147
168	HEEBI05	PTA-2076 06/09/00	Uni-ZAP XR	178	894	1	894	146	146	1115	1	22	23	159
168	HEEBI05	PTA-2076 06/09/00	Uni-ZAP XR	711	979	88	979	226	226	1648	1	22	23	159
169	HEGAH43	209277 09/18/97	Uni-ZAP XR	179	442	1	442	29	29	1116	1	20	21	111
170	HEGAN94	203071 07/27/98	Uni-ZAP XR	180	582	1	582	52	52	1117	1	23	24	121
170	HEGAN94	203071 07/27/98	Uni-ZAP XR	712	680	1	680	133	133	1649	1	23	24	121
171	HEGBS69	PTA-2082 06/09/00	Uni-ZAP XR	181	809	1	809	260	260	1118	1	20	21	161
171	HEGBS69	PTA-2082 06/09/00	Uni-ZAP XR	713	1188	1	807	253	253	1650	1	20	21	161
172	HELK31	209878 05/18/98	Uni-ZAP XR	182	1396	25	1334	209	209	1119	1	29	30	344
172	HELK31	209878 05/18/98	Uni-ZAP XR	714	1342	68	1342	402	402	1651	1	1	2	291

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
173	HELHD85	PTA-1544 03/21/00	Uni-ZAP XR	183	1886	1	1886	41	41	1120	1	25	26	79
174	HELHL48	209877 05/18/98	Uni-ZAP XR	184	2971	560	2557	629	629	1121	1	16	17	291
174	HELHL48	209877 05/18/98	Uni-ZAP XR	715	1955	1	1955	31	31	1652	1	16	17	184
175	HEMAM41	209010 04/28/97 209085 05/29/97	Uni-ZAP XR	185	1337	60	1328	175	175	1122	1	39	40	190
175	HEMAM41	209010 04/28/97 209085 05/29/97	Uni-ZAP XR	716	1338	33	1327	175	175	1653	1	32	33	91
176	HEPAA46	209551 12/12/97	Uni-ZAP XR	186	1129	1	1129	18	18	1123	1	20	21	123
177	HEPAB80	209423 10/30/97	Uni-ZAP XR	187	799	1	799	73	73	1124	1	28	29	121
177	HEPAB80	209423 10/30/97	Uni-ZAP XR	717	802	1	802	67	67	1654	1	28	29	122
178	HEQAK71	209551 12/12/97	pCMV/Sport 3.0	188	1689	1	1689	198	198	1125	1	17	18	44
179	HERAR44	209407 10/23/97	Uni-ZAP XR	189	420	1	420	60	60	1126	1	40	41	45
180	HESAJ10	209242 09/12/97	Uni-ZAP XR	190	1090	400	1090	405	405	1127	1	23	24	71

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secured Portion	Last AA of ORF
181	HETAB45	209580 01/14/98	Uni-ZAP XR	191	1676	1	1676	123	123	1128	1	30	31	179
182	HETBR16	209877 05/18/98	Uni-ZAP XR	192	1569	1	1569	161	161	1129	1	21	22	64
183	HETLM70	PTA-2073 06/09/00	Uni-ZAP XR	193	1251	1	1199	336	336	1130	1	27	28	229
183	HETLM70	PTA-2073 06/09/00	Uni-ZAP XR	718	1251	1	1251	336	336	1655	1	27	28	229
183	HETLM70	PTA-2073 06/09/00	Uni-ZAP XR	719	517	161	517		2	1656	1	1	2	85
184	HFABG18	PTA-1544 03/21/00	Uni-ZAP XR	194	1345	1	1345	53	53	1131	1	26	27	87
185	HFAMB72	209146 07/17/97	Uni-ZAP XR	195	1323	509	1323	559	559	1132	1	22	23	60
186	HFAMH77	209300 09/25/97	Uni-ZAP XR	196	669	96	669	240	240	1133	1	33	34	61
187	HFCCQ50	209463 11/14/97	Uni-ZAP XR	197	1271	1	1271	47	47	1134	1	20	21	352
188	HFCEW05	209603 01/29/98	Uni-ZAP XR	198	933	1	933	34	34	1135	1	18	19	209
189	HFFAD59	209242 09/12/97	Lambda ZAP II	199	470	1	470	44	44	1136	1	17	18	45
190	HFFAL36	209368 10/16/97	Lambda ZAP II	200	1020	1	1020	68	68	1137	1	35	36	56
191	HFGAD82	209225 08/28/97	Uni-ZAP XR	201	1881	772	1861	1019	1019	1138	1	18	19	38

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
192	HFIIZ70	PTA-846 10/13/99	pSport1	202	1408	1	1408	24	24	1139	1	23	24	47
192	HFIIZ70	PTA-846 10/13/99	pSport1	720	1441	43	1441	74	74	1657	1	23	24	47
193	HFKET18	PTA-622 09/02/99	Uni-ZAP XR	203	2407	1	2407	137	137	1140	1	14	15	74
194	HFKFG02	209627 02/12/98	Uni-ZAP XR	204	795	1	795	110	110	1141	1	18	19	53
195	HFOXBI3	209423 10/30/97	pSport1	205	1169	1	1169	36	36	1142	1	21	22	54
196	HFPAC12	209511 12/03/97	Uni-ZAP XR	206	1088	1	1088	140	140	1143	1	21	22	88
197	HFPAC071	209626 02/12/98	Uni-ZAP XR	207	2067	364	2067	414	414	1144	1	33	34	131
198	HFPXC09	209551 12/12/97	Uni-ZAP XR	208	2213	1	2213	185	185	1145	1	26	27	549
198	HFPXC09	209551 12/12/97	Uni-ZAP XR	721	2674	59	2674	249	249	1658	1	26	27	549
198	HFPXC09	209551 12/12/97	Uni-ZAP XR	722	2207	1	2207	185	185	1659	1	26	27	66
199	HFPXC36	209242 09/12/97	Uni-ZAP XR	209	796	1	796	103	103	1146	1	27	28	46
200	HFRAN90	209242 09/12/97	Uni-ZAP XR	210	532	1	532	178	178	1147	1	33	34	54
201	HFTCU19	209119 06/12/97	Uni-ZAP XR	211	1575	1266	1575	137	137	1148	1	30	31	222

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
201	HFTCU19	209119 06/12/97	Uni-ZAP XR	723	470	1	470	157	157	1660	1	24	25	56
202	HFTDL56	209782 04/20/98	Uni-ZAP XR	212	1839	32	1838	93	93	1149	1	20	21	519
203	HFTDZ36	209300 09/25/97	Uni-ZAP XR	213	1103	231	1103	547	547	1150	1	22	23	68
204	HFVAB79	209368 10/16/97	Uni-ZAP XR	214	1175	1	1175	133	133	1151	1	15	16	194
204	HFVAB79	209368 10/16/97	Uni-ZAP XR	724	1186	1	1186	139	139	1661	1	15	16	194
205	HFVGE32	PTA-844 10/13/99	pBluescript	215	572	1	572	154	154	1152	1	32	33	79
205	HFVGE32	PTA-844 10/13/99	pBluescript	725	470	2	470		1	1662	1	1	2	67
206	HFVIC62	203105 08/13/98	pBluescript	216	1350	1	1350	114	114	1153	1	31	32	56
207	HFXAM76	209568 01/06/98	Lambda ZAP II	217	947	1	947	213	213	1154	1	24	25	79
208	HFXDJ75	209603 01/29/98	Lambda ZAP II	218	1918	1	1914	44	44	1155	1	26	27	41
209	HFXDN63	209346 10/09/97	Lambda ZAP II	219	1026	1	1026	33	33	1156	1	14	15	53
210	HFXGT26	209965 06/11/98	Lambda ZAP II	220	1757	1	1757	13	13	1157	1	22	23	85
211	HFXGV31	209242 09/12/97	Lambda ZAP II	221	752	1	752	100	100	1158	1	24	25	64

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
212	HFXHD88	209511 12/03/97	Lambda ZAP II	222	1602	1	1602	130	130	1159	1	41	42	128
213	HFXHK73	209580 01/14/98	Lambda ZAP II	223	1873	1	1873	247	247	1160	1	36	37	67
214	HFXKJ03	209215 08/21/97	Lambda ZAP II	224	941	1	941	179	179	1161	1	33	34	41
215	HFXKT05	209651 03/04/98	Lambda ZAP II	225	1715	1	1715	204	204	1162	1	18	19	79
216	HFXKY27	209877 05/18/98	Lambda ZAP II	226	945	1	945	44	44	1163	1	19	20	58
217	HGBFO79	209011 04/28/97	Uni-ZAP XR	227	1538	259	1538	273	273	1164	1	23	24	49
218	HGBHE57	209407 10/23/97	Uni-ZAP XR	228	663	1	663	14	14	1165	1	19	20	68
219	HGBIB74	203648 02/09/99	Uni-ZAP XR	229	1816	1	1804	14	14	1166	1	23	24	377
219	HGBIB74	203648 02/09/99	Uni-ZAP XR	726	1821	1	1821	28	28	1663	1	20	21	170
219	HGBIB74	203648 02/09/99	Uni-ZAP XR	727	1094	1	1094		2	1664	1	1	2	151
220	HGLAL82	209242 09/12/97	Uni-ZAP XR	230	406	1	406	144	144	1167	1	19	20	26
221	HHAAF20	203648 02/09/99	Uni-ZAP XR	231	1495	1	1495	141	141	1168	1	18	19	55
222	HHBCS39	PTA-848 10/13/99	pCMV Sport 1	232	2895	1	2895	104	104	1169	1	26	27	166

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
222	HHBCS39	PTA-848 10/13/99	pCMVSPORT 1	728	1042	1	1042	150	150	1665	1	26	27	166
222	HHBCS39	PTA-848 10/13/99	pCMVSPORT 1	729	1556	171	1556		1260	1666	1	16	17	26
223	HHEAA08	209853 05/07/98	pCMVSPORT 3.0	233	2150	1	2150	88	88	1170	1	38	39	79
223	HHEAA08	209853 05/07/98	pCMVSPORT 3.0	730	615	1	615		311	1667	1	13	14	20
224	HHEMA59	203364 10/19/98	pCMVSPORT 3.0	234	3102	1	3099	239	239	1171	1	20	21	76
225	HHEMA75	209179 07/24/97	pCMVSPORT 3.0	235	865	229	865	569	569	1172	1	35	36	84
226	HHEMM74	PTA-849 10/13/99	pCMVSPORT 3.0	236	2612	1	2612	94	94	1173	1	27	28	74
226	HHEMM74	PTA-849 10/13/99	pCMVSPORT 3.0	731	1125	1	1125	121	121	1668	1	27	28	74
226	HHEMM74	PTA-849 10/13/99	pCMVSPORT 3.0	732	2297	1425	2297		706	1669	1	6	7	33
226	HHEMM74	PTA-849 10/13/99	pCMVSPORT 3.0	733	482	33	482		7	1670	1	13	14	53
227	HHENQ22	209511 12/03/97	pCMVSPORT 3.0	237	1899	1	1899	115	115	1174	1	36	37	58
228	HHEPD24	209195 08/01/97	pCMVSPORT 3.0	238	238	1	238	156	156	1175	1	23	24	27
229	HHEPM33	PTA-322 07/09/99	pCMVSPORT 3.0	239	1459	1	1459	269	269	1176	1	20	21	82



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
230	HHEPT60	209138 07/03/97	pCMVSPORT 3.0	240	532	21	532	245	245	1177	1	18	19	36
231	HHEPU04	203648 02/09/99	pCMVSPORT 3.0	241	1084	116	1084	259	259	1178	1	31	32	163
231	HHEPU04	203648 02/09/99	pCMVSPORT 3.0	734	1081	124	1081	267	267	1671	1	31	32	163
231	HHEPU04	203648 02/09/99	pCMVSPORT 3.0	735	720	1	720	45	45	1672	1	31	32	92
232	HHFBY53	203364 10/19/98	Uni-ZAP XR	242	870	1	870	172	172	1179	1	18	19	64
233	HHFEC49	PTA-844 10/13/99	Uni-ZAP XR	243	2263	1	2263	30	30	1180	1	24	25	184
234	HHFFJ48	209627 02/12/98	Uni-ZAP XR	244	2566	1	2566	65	65	1181	1	21	22	106
235	HHFGR93	209746 04/07/98	Uni-ZAP XR	245	1835	1	1835	132	132	1182	1	29	30	390
235	HHFGR93	209746 04/07/98	Uni-ZAP XR	736	1932	1	1836	130	130	1673	1	29	30	236
236	HHFHI59	97975 04/04/97 209081 05/29/97	Uni-ZAP XR	246	661	1	661	192	192	1183	1	29	30	112
237	HHFHR32	97975 04/04/97 209081 05/29/97	Uni-ZAP XR	247	1378	1	1378	58	58	1184	1	25	26	235

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
238	HHFOJ29	PTA-2075 06/09/00	Uni-ZAP XR	248	1366	1	1366	117	117	1185	1	31	32	82
238	HHFOJ29	PTA-2075 06/09/00	Uni-ZAP XR	737	1595	513	1595	132	132	1674	1	19	20	95
238	HHFOJ29	PTA-2075 06/09/00	Uni-ZAP XR	738	970	272	970		62	1675	1	1	2	152
239	HHGBO91	209242 09/12/97	Lambda ZAP II	249	715	1	715	140	140	1186	1	28	29	49
240	HHGCM76	97958 03/13/97 209072 05/22/97	Lambda ZAP II	250	711	8	711	270	270	1187	1	22	23	89
240	HHGCM76	97958 03/13/97 209072 05/22/97	Lambda ZAP II	739	711	8	711	270	270	1676	1			11
241	HHGCQ54	209300 09/25/97	Lambda ZAP II	251	875	1	875	62	62	1188	1	15	16	51
242	HHGDF16	209463 11/14/97	Lambda ZAP II	252	890	215	890	253	253	1189	1	26	27	52
243	HHGDW43	209346 10/09/97	Lambda ZAP II	253	1050	1	1050	107	107	1190	1	40	41	44
244	HHPD X20	209580 01/14/98	Uni-ZAP XR	254	1161	1	1161	174	174	1191	1	30	31	66
245	HHPGO40	209878 05/18/98	Uni-ZAP XR	255	1002	1	1002	116	116	1192	1	26	27	295

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
245	HHPGO40	209878 05/18/98	Uni-ZAP XR	740	973	1	973	68	68	1677	1	37	38	302
245	HHPGO40	209878 05/18/98	Uni-ZAP XR	741	984	1	984	74	74	1678	1	37	38	224
246	HHPTJ65	209179 07/24/97	Uni-ZAP XR	256	515	1	515	247	247	1193	1	32	33	48
247	HHSDX28	209346 10/09/97	Uni-ZAP XR	257	1113	1	1113	90	90	1194	1	21	22	56
248	HILCF66	209627 02/12/98	pBluescript SK-	258	1668	740	1668	331	331	1195	1	21	22	44
249	HJACG02	209215 08/21/97	pBluescript SK-	259	575	1	575	66	66	1196	1	22	23	108
249	HJACG02	209215 08/21/97	pBluescript SK-	742	553	1	553	47	47	1679	1	23	24	108
250	HJACG30	PTA-843 10/13/99	pBluescript SK-	260	1532	1	1532	291	291	1197	1	27	28	44
250	HJACG30	PTA-843 10/13/99	pBluescript SK-	743	1614	1020	1614		50	1680	1	1	2	130
250	HJACG30	PTA-843 10/13/99	pBluescript SK-	744	1087	491	1087		350	1681	1	1	2	122
251	HJBCU04	PTA-322 07/09/99	pBluescript SK-	261	1192	1	1192	96	96	1198	1	49	50	176
252	HJBCY35	209877 05/18/98	pBluescript SK-	262	1559	93	1272	232	232	1199	1	23	24	327
253	HJMBI18	209580 01/14/98	pCMVSPORT 3.0	263	1021	303	1021	574	574	1200	1	19	20	80

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
254	HJMBM38	209300 09/25/97	pCMVSPORT 3.0	264	1024	316	1023	387	387	1201	1	14	15	112
255	HJMBT65	209580 01/14/98	pCMVSPORT 3.0	265	621	79	621	341	341	1202	1	33	34	42
256	HJMBW30	209146 07/17/97	pCMVSPORT 3.0	266	884	1	874	110	110	1203	1	18	19	42
257	HJPAD75	209641 02/25/98	Uni-ZAP XR	267	1231	1	1231	60	60	1204	1	29	30	91
258	HJPCP42	PTA-843 10/13/99	Uni-ZAP XR	268	1223	1	1223		156	1205	1	20	21	223
258	HJPCP42	PTA-843 10/13/99	Uni-ZAP XR	745	1201	1	1201		134	1682	1	20	21	223
258	HJPCP42	PTA-843 10/13/99	Uni-ZAP XR	746	628	229	628		468	1683	1			8
258	HJPCP42	PTA-843 10/13/99	Uni-ZAP XR	747	425	237	348		1	1684	1	1	2	83
259	HKAAE44	209368 10/16/97	pCMVSPORT 2.0	269	1494	1	1494	113	113	1206	1	39	40	136
260	HKAAH36	209563 12/18/97	pCMVSPORT 2.0	270	1216	1	1216	128	128	1207	1	29	30	293
260	HKAAH36	209563 12/18/97	pCMVSPORT 2.0	748	1016	1	1016	295	295	1685	1	29	30	143
260	HKAAH36	209563 12/18/97	pCMVSPORT 2.0	749	1490	1	1490	182	182	1686	1	29	30	293
260	HKAAH36	209563 12/18/97	pCMVSPORT 2.0	750	1441	8	1392	184	184	1687	1	29	30	85

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
260	HKAAH36	209563 12/18/97	pCMVSPORT 2.0	751	1516	1	1516	254	254	1688	1	29	30	293
260	HKAAH36	209563 12/18/97	pCMVSPORT 2.0	752	1381	196	1381	129	129	1689	1	29	30	293
260	HKAAH36	209563 12/18/97	pCMVSPORT 2.0	753	1439	1	1439	189	189	1690	1	29	30	61
261	HKAAK02	209551 12/12/97	pCMVSPORT 2.0	271	859	1	859	97	97	1208	1	34	35	196
262	HKABI84	209603 01/29/98	pCMVSPORT 2.0	272	1238	45	1238	274	274	1209	1	16	17	47
263	HKABZ65	209683 03/20/98	pCMVSPORT 2.0	273	1189	1	1189	77	77	1210	1	17	18	243
263	HKABZ65	209683 03/20/98	pCMVSPORT 2.0	754	1191	1	1191	69	69	1691	1	17	18	243
264	HKACB56	209346 10/09/97	pCMVSPORT 2.0	274	496	1	496	27	27	1211	1	23	24	80
265	HKACD58	209346 10/09/97	pCMVSPORT 2.0	275	3153	1	3153	38	38	1212	1	25	26	301
265	HKACD58	209346 10/09/97	pCMVSPORT 2.0	755	1626	1	1626	35	35	1692	1	25	26	154
266	HKACH44	209300 09/25/97	pCMVSPORT 2.0	276	686	1	686	375	375	1213	1	25	26	44
267	HKACM93	PTA-849 10/13/99	pCMVSPORT 2.0	277	2352	1	2352	218	218	1214	1	30	31	692
267	HKACM93	PTA-849 10/13/99	pCMVSPORT 2.0	756	549	1	549	189	189	1693	1	30	31	120

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
267	HKACM93	PTA-849 10/13/99	pCMVSPORT 2.0	757	1120	1	1120	314	314	1694	1	30	31	269
267	HKACM93	PTA-849 10/13/99	pCMVSPORT 2.0	758	1893	739	1893		202	1695	1	13	14	17
267	HKACM93	PTA-849 10/13/99	pCMVSPORT 2.0	759	1187	1	1187		638	1696	1	4	5	45
268	HKAEL80	209423 10/30/97	pCMVSPORT 2.0	278	1105	1	1105	398	398	1215	1	17	18	79
269	HKAEV06	209627 02/12/98	pCMVSPORT 2.0	279	2496	1	2496	501	501	1216	1	30	31	438
269	HKAEV06	209627 02/12/98	pCMVSPORT 2.0	760	2351	1	2351	197	197	1697	1	29	30	57
270	HKAFFK41	209300 09/25/97	pCMVSPORT 2.0	280	549	1	549	243	243	1217	1	30	31	43
271	HKAFT66	PTA-849 10/13/99	pCMVSPORT 2.0	281	1001	270	1001	508	508	1218	1	41	42	107
271	HKAFT66	PTA-849 10/13/99	pCMVSPORT 2.0	761	1001	270	1001	508	508	1698	1	41	42	107
271	HKAFT66	PTA-849 10/13/99	pCMVSPORT 2.0	762	669	1	669	234	234	1699	1			37
272	HKDBF34	209511 12/03/97	pCMVSPORT 1	282	1432	60	1418	69	69	1219	1	14	15	222
272	HKDBF34	209511 12/03/97	pCMVSPORT 1	763	1356	1	1356	18	18	1700	1	19	20	104
273	HKGAT94	209126 06/19/97	pSPORT1	283	1048	1	1048	449	449	1220	1	31	32	99

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
273	HKGAT94	209126 06/19/97	pSport1	764	1063	1	1063		470	1701	1	20	21	94
274	HKGCO27	209853 05/07/98	pSport1	284	1021	1	1021	313	313	1221	1	26	27	93
274	HKGCO27	209853 05/07/98	pSport1	765	1311	1	1311	57	57	1702	1	26	27	47
275	HKISB57	209603 01/29/98	pBluescript	285	1492	1	1439	130	130	1222	1	19	20	95
276	HKMLK53	209511 12/03/97	pBluescript	286	1543	1	1543	20	20	1223	1	25	26	69
277	HKMLM11	209236 09/04/97	pBluescript	287	954	1	954	82	82	1224	1	20	21	130
278	HKMLP68	PTA-845 10/13/99	pBluescript	288	2784	1	2784	130	130	1225	1	24	25	80
278	HKMLP68	PTA-845 10/13/99	pBluescript	766	718	1	718	153	153	1703	1	24	25	80
278	HKMLP68	PTA-845 10/13/99	pBluescript	767	614	1	614		471	1704	1	1	2	47
279	HKMMD13	209568 01/06/98	pBluescript	289	943	1	943	342	342	1226	1	21	22	49
280	HKMND01	203069 07/27/98	pBluescript	290	887	1	887	23	23	1227	1	26	27	50
281	HL2AC08	209580 01/14/98	Uni-ZAP XR	291	1478	1	1478	64	64	1228	1	23	24	280
282	HL2AG57	209746 04/07/98	Uni-ZAP XR	292	1780	349	1780	560	560	1229	1	31	32	80

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
283	HLCND09	PTA-2076 06/09/00	Uni-ZAP XR	293	1984	1	1984	146	146	1230	1	38	39	110
283	HLCND09	PTA-2076 06/09/00	Uni-ZAP XR	768	465	1	465	38	38	1705	1	38	39	142
284	HLDBE54	209563 12/18/97	pCMVSPORT 3.0	294	1222	1	1222	155	155	1231	1	38	39	318
284	HLDBE54	209563 12/18/97	pCMVSPORT 3.0	769	1194	1	1194	130	130	1706	1	26	27	89
284	HLDBE54	209563 12/18/97	pCMVSPORT 3.0	770	2334	1874	2334	133	133	1707	1	33	34	486
285	HLDBX13	203331 10/08/98	pCMVSPORT 3.0	295	1815	1	1815	303	303	1232	1	39	40	55
286	HLDNA86	209277 09/18/97	pCMVSPORT 3.0	296	1346	1	1346	238	238	1233	1	34	35	163
286	HLDNA86	209277 09/18/97	pCMVSPORT 3.0	771	720	1	717	45	45	1708	1	31	32	92
287	HLDON23	209628 02/12/98	pCMVSPORT 3.0	297	1262	208	1256	368	368	1234	1	20	21	113
288	HLDOW79	PTA-1544 03/21/00	pCMVSPORT 3.0	298	989	1	989	43	43	1235	1	21	22	275
289	HLDQC46	PTA-1544 03/21/00	pCMVSPORT 3.0	299	632	1	632	163	163	1236	1	34	35	87
290	HLDQR62	203027 06/26/98	pCMVSPORT 3.0	300	2572	427	2572	520	520	1237	1	18	19	161
291	HLDQU79	203071 07/27/98	pCMVSPORT 3.0	301	1488	1	1488	99	99	1238	1	23	24	348



Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
292	HLDRM43	209628 02/12/98	pCMVSPORT 3.0	302	609	1	609	24	24	1239	1	20	21	151
292	HLDRM43	209628 02/12/98	pCMVSPORT 3.0	772	759	1	759	164	164	1709	1	20	21	151
293	HLDRP33	209641 02/25/98	pCMVSPORT 3.0	303	612	1	612	215	215	1240	1	26	27	41
294	HLHFP03	209126 06/19/97	Uni-ZAP XR	304	613	1	613	224	224	1241	1	19	20	116
295	HLHFR58	PTA-841 10/13/99	Uni-ZAP XR	305	1015	1	1015		206	1242	1	17	18	21
295	HLHFR58	PTA-841 10/13/99	Uni-ZAP XR	773	733	1	733		205	1710	1	16	17	21
295	HLHFR58	PTA-841 10/13/99	Uni-ZAP XR	774	741	1	741		288	1711	1	1	2	67
295	HLHFR58	PTA-841 10/13/99	Uni-ZAP XR	775	951	12	675		254	1712	1	1	2	91
296	HLIBD68	203071 07/27/98	pCMVSPORT 1	306	1022	1	1022	186	186	1243	1	35	36	50
297	HLICQ90	203517 12/10/98	pCMVSPORT 1	307	1766	1	1766	249	249	1244	1	29	30	206
298	HLMBO76	209603 01/29/98	Lambda ZAP II	308	815	1	795	43	43	1245	1	43	44	107
299	HLQBE09	209243 09/12/97	Lambda ZAP II	309	633	1	633	17	17	1246	1	19	20	181
300	HLQDR48	209603 01/29/98	Lambda ZAP II	310	989	1	989	10	10	1247	1	21	22	190

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
300	HLQDR48	209603 01/29/98	Lambda ZAP II	776	990	1	990	3	3	1713	1	21	22	190
301	HLTAU74	PTA-163 06/01/99	Uni-ZAP XR	311	1524	1	1524	76	76	1248	1	21	22	62
302	HLTDV50	209243 09/12/97	Uni-ZAP XR	312	770	1	770	74	74	1249	1	17	18	28
303	HLTEI25	97979 03/27/97	Uni-ZAP XR	313	843	1	843	155	155	1250	1	19	20	42
304	HLTEJ06	209346 10/09/97	Uni-ZAP XR	314	617	69	617	197	197	1251	1	22	23	55
305	HLTFA64	209628 02/12/98	Uni-ZAP XR	315	1130	1	1130	268	268	1252	1	42	43	43
306	HLTHG37	209965 06/11/98	Uni-ZAP XR	316	3740	1908	3740	50	50	1253	1	1	2	319
306	HLTHG37	209965 06/11/98	Uni-ZAP XR	777	1932	98	1932	313	313	1714	1	35	36	42
307	HLWAA17	209626 02/12/98	pCMVSPORT 3.0	317	997	246	997	436	436	1254	1	15	16	187
308	HLWAA88	209551 12/12/97	pCMVSPORT 3.0	318	1770	1	1770	35	35	1255	1	22	23	113
308	HLWAA88	209551 12/12/97	pCMVSPORT 3.0	778	1636	1	1636	51	51	1715	1	22	23	488
309	HLWAD77	209651 03/04/98	pCMVSPORT 3.0	319	1167	304	1167	326	326	1256	1	24	25	140
310	HLWAE11	203071 07/27/98	pCMVSPORT 3.0	320	1618	1	1618	28	28	1257	1	46	47	278

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
311	HLWAO22	209511 12/03/97	pCMVSPORT 3.0	321	1338	1	1311	212	212	1258	1	21	22	354
312	HLWAY54	209651 03/04/98	pCMVSPORT 3.0	322	1892	1	1892	38	38	1259	1	25	26	338
313	HLWBH18	PTA-849 10/13/99	pCMVSPORT 3.0	323	813	1	813	107	107	1260	1	18	19	60
313	HLWBH18	PTA-849 10/13/99	pCMVSPORT 3.0	779	645	1	645	67	67	1716	1	18	19	60
314	HLWBI63	209407 10/23/97	pCMVSPORT 3.0	324	1038	1	1038	149	149	1261	1	30	31	63
315	HLWBK05	203331 10/08/98	pCMVSPORT 3.0	325	2383	157	2383	280	280	1262	1	34	35	298
316	HLWBY76	203517 12/10/98	pCMVSPORT 3.0	326	2081	1	2081	432	432	1263	1	27	28	232
317	HLWCF05	209126 06/19/97	pCMVSPORT 3.0	327	646	1	646	155	155	1264	1	36	37	58
318	HLYAC95	203071 07/27/98	pSPORT1	328	312	1	312	92	92	1265	1	16	17	46
319	HLYAF80	209126 06/19/97	pSPORT1	329	826	1	826	222	222	1266	1	24	25	47
320	HLYAN59	209346 10/09/97	pSPORT1	330	770	1	770	383	383	1267	1	40	41	77
320	HLYAN59	209346 10/09/97	pSPORT1	780	729	1	729	254	254	1717	1	39	40	54
321	HLYAP91	209346 10/09/97	pSPORT1	331	1276	1	1276	280	280	1268	1	29	30	83

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
322	HL YAZ61	209022 05/08/97	pSport1	332	1237	1	1237	190	190	1269	1	18	19	222
322	HL YAZ61	209022 05/08/97	pSport1	781	997	74	997	205	205	1718	1	18	19	215
323	HL YBD32	209407 10/23/97	pSport1	333	1045	35	1045	98	98	1270	1	23	24	70
324	HL YES38	209853 05/07/98	pSport1	334	1223	1	1223	69	69	1271	1	22	23	73
325	HMA DS41	209563 12/18/97	Uni-ZAP XR	335	1267	1	1267	267	267	1272	1	21	22	88
326	HMA DU73	209139 07/03/97	Uni-ZAP XR	336	3194	1	3194	491	491	1273	1	16	17	713
326	HMA DU73	209139 07/03/97	Uni-ZAP XR	782	437	1	437	115	115	1719	1	15	16	77
327	HMA MI15	PTA-2075 06/09/00	Uni-ZAP XR	337	1258	1	1258	4	4	1274	1	26	27	340
327	HMA MI15	PTA-2075 06/09/00	Uni-ZAP XR	783	1084	1	1084	3	3	1720	1	26	27	306
328	HMD AE65	209243 09/12/97	Uni-ZAP XR	338	698	1	698	179	179	1275	1	17	18	77
329	HMD AM24	209226 08/28/97	Uni-ZAP XR	339	996	1	996	109	109	1276	1			20
330	HMD AQ29	209563 12/18/97	Uni-ZAP XR	340	974	1	974	180	180	1277	1	43	44	82
331	HME AI48	203069 07/27/98	Lambda ZAP II	341	413	1	413	36	36	1278	1	29	30	88

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
331	HMEAI48	203069 07/27/98	Lambda ZAP II	784	1168	1	1168	95	95	1721	1	29	30	40
332	HMECK83	209853 05/07/98	Lambda ZAP II	342	1010	1	1010	50	50	1279	1	28	29	54
333	HMBET96	209407 10/23/97	Lambda ZAP II	343	1337	73	1200	121	121	1280	1	30	31	266
334	HMIAL37	209563 12/18/97	Uni-ZAP XR	344	1420	1	1420	49	49	1281	1	13	14	97
335	HMIAP86	209878 05/18/98	Uni-ZAP XR	345	1674	13	1674	182	182	1282	1	19	20	334
336	HMKCG09	209346 10/09/97	pSport1	346	921	60	921	221	221	1283	1	28	29	49
337	HMMAH60	209368 10/16/97	pSport1	347	822	1	822	142	142	1284	1	15	16	50
338	HMQDF12	209407 10/23/97	Uni-ZAP XR	348	706	1	627	63	63	1285	1	27	28	142
339	HMSBX80	209563 12/18/97	Uni-ZAP XR	349	1726	1	1726	169	169	1286	1	19	20	57
340	HMSFS21	209324 10/02/97	Uni-ZAP XR	350	1283	1	1283	28	28	1287	1	17	18	37
341	HMSGGB14	209423 10/30/97	Uni-ZAP XR	351	1552	1	1552	138	138	1288	1	18	19	77
342	HMSGT42	97958 03/13/97 209072 05/22/97	Uni-ZAP XR	352	1563	33	1077	40	40	1289	1	32	33	92

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
343	HMSHM14	209126 06/19/97	Uni-ZAP XR	353	756	1	756	103	103	1290	1	29	30	45
344	HMSHS36	PTA-2070 06/09/00	Uni-ZAP XR	354	1402	1	1402	134	134	1291	1	23	24	103
344	HMSHS36	PTA-2070 06/09/00	Uni-ZAP XR	785	616	30	616	162	162	1722	1	23	24	103
345	HMSJM65	209641 02/25/98	Uni-ZAP XR	355	2270	1	2231	111	111	1292	1	27	28	77
346	HMSJU68	209076 05/22/97	Uni-ZAP XR	356	1123	4	1123	272	272	1293	1	31	32	49
347	HMSKC04	203105 08/13/98	Uni-ZAP XR	357	1417	1	1417	133	133	1294	1	22	23	73
348	HMTBI36	PTA-322 07/09/99	pCMVSPORT 3.0	358	3388	1	3388	256	256	1295	1	18	19	957
348	HMTBI36	PTA-322 07/09/99	pCMVSPORT 3.0	786	3546	1	3363	255	255	1723	1	18	19	957
349	HMUAP70	209878 05/18/98	pCMVSPORT 3.0	359	1965	531	1914	183	183	1296	1	16	17	221
349	HMUAP70	209878 05/18/98	pCMVSPORT 3.0	787	1842	407	1783	413	413	1724	1	25	26	103
349	HMUAP70	209878 05/18/98	pCMVSPORT 3.0	788	1963	530	1914	251	251	1725	1	28	29	198
349	HMUAP70	209878 05/18/98	pCMVSPORT 3.0	789	1487	1	1487	62	62	1726	1	16	17	106
349	HMUAP70	209878 05/18/98	pCMVSPORT 3.0	790	1653	1	1653	60	60	1727	1	15	16	68

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	S' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
349	HMUAP70	209878 05/18/98	pCMVSPORT 3.0	791	1830	407	1830	60	60	1728	1			23
350	HMVBN46	209603 01/29/98	pSport1	360	1382	1	1382	10	10	1297	1	19	20	48
351	HMWEB02	209628 02/12/98	Uni-ZAP XR	361	1755	1	1755	106	106	1298	1	23	24	91
352	HMWFO02	209324 10/02/97	Uni-ZAP XR	362	547	1	547	7	7	1299	1	37	38	68
352	HMWFO02	209324 10/02/97	Uni-ZAP XR	792	708	1	708	20	20	1729	1	38	39	60
353	HMWGY65	203105 08/13/98	Uni-ZAP XR	363	1974	1	1974	42	42	1300	1	21	22	490
353	HMWGY65	203105 08/13/98	Uni-ZAP XR	793	2027	1	1976	42	42	1730	1	21	22	188
354	HNEAC05	209236 09/04/97	Uni-ZAP XR	364	890	1	890	101	101	1301	1	24	25	105
355	HNEEB45	PTA-845 10/13/99	Uni-ZAP XR	365	1043	1	1043	139	139	1302	1	25	26	57
355	HNEEB45	PTA-845 10/13/99	Uni-ZAP XR	794	699	160	699	226	226	1731	1	25	26	57
356	HNFFC43	203027 06/26/98	Uni-ZAP XR	366	2103	209	2058	488	488	1303	1	12	13	68
357	HNFIU96	209126 06/19/97	pBluescript	367	456	1	456	170	170	1304	1	32	33	79
358	HNFIJF07	209463 11/14/97	Uni-ZAP XR	368	616	1	616	86	86	1305	1	21	22	66

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
359	HNEFH45	97976 04/04/97	Uni-ZAP XR	369	575	1	575	275	275	1306	1	30	31	67
360	HNGAK47	209368 10/16/97	Uni-ZAP XR	370	1144	1	1144	89	89	1307	1	23	24	40
361	HNGAP93	209243 09/12/97	Uni-ZAP XR	371	703	1	703	50	50	1308	1	19	20	33
362	HNGBC07	PTA-844 10/13/99	Uni-ZAP XR	372	1649	1	1647	81	81	1309	1	18	19	249
362	HNGBC07	PTA-844 10/13/99	Uni-ZAP XR	795	1649	1	1647	122	122	1732	1	24	25	44
362	HNGBC07	PTA-844 10/13/99	Uni-ZAP XR	796	1570	1	1570	55	55	1733	1	24	25	44
363	HNGBT31	97976 04/04/97	Uni-ZAP XR	373	639	1	639	224	224	1310	1	28	29	104
364	HNGDG40	209299 09/25/97	Uni-ZAP XR	374	520	1	520	13	13	1311	1	36	37	127
365	HNGDI72	209299 09/25/97	Uni-ZAP XR	375	524	1	524	185	185	1312	1	19	20	113
366	HNGDU40	209563 12/18/97	Uni-ZAP XR	376	1035	1	1035	333	333	1313	1	17	18	51
367	HNGEO29	209299 09/25/97	Uni-ZAP XR	377	491	1	491	98	98	1314	1	32	33	44
368	HNGEP09	209197 08/08/97	Uni-ZAP XR	378	1042	1	1042	72	72	1315	1	15	16	82
369	HNGHR74	209346 10/09/97	Uni-ZAP XR	379	1095	1	1095	53	53	1316	1	18	19	41



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
370	HNGIH43	97976 04/04/97	Uni-ZAP XR	380	427	1	427	178	178	1317	1	31	32	40
371	HNGIJ31	209236 09/04/97	Uni-ZAP XR	381	796	1	796	135	135	1318	1	16	17	36
372	HNGIQ46	209243 09/12/97	Uni-ZAP XR	382	527	1	527	221	221	1319	1	21	22	70
373	HNGJE50	209368 10/16/97	Uni-ZAP XR	383	1037	1	1037	77	77	1320	1	36	37	46
374	HNGJO57	209463 11/14/97	Uni-ZAP XR	384	828	1	828	87	87	1321	1	18	19	52
375	HNGJP69	209603 01/29/98	Uni-ZAP XR	385	985	1	985	321	321	1322	1	14	15	74
376	HNGJT54	209215 08/21/97	Uni-ZAP XR	386	1110	1	1110	172	172	1323	1	19	20	34
377	HNGKN89	203648 02/09/99	Uni-ZAP XR	387	925	1	925	436	436	1324	1	24	25	53
378	HNGOM56	203648 02/09/99	Uni-ZAP XR	388	956	1	956	391	391	1325	1	22	23	55
379	HNGOU56	203858 03/18/99	Uni-ZAP XR	389	742	1	742	317	317	1326	1	23	24	59
380	HNGOW62	PTA-622 09/02/99	Uni-ZAP XR	390	1298	1	1298	167	167	1327	1	19	20	54
381	HNH AH01	209180 07/24/97	Uni-ZAP XR	391	905	1	905	328	328	1328	1	41	42	54
382	HNH CX60	209243 09/12/97	Uni-ZAP XR	392	762	1	762	158	158	1329	1	20	21	21

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
383	HNHCY64	209243 09/12/97	Uni-ZAP XR	393	725	1	725	258	258	1330	1	32	33	44
384	HNHCY94	209243 09/12/97	Uni-ZAP XR	394	606	1	606	78	78	1331	1	25	26	48
385	HNHDW38	209299 09/25/97	Uni-ZAP XR	395	793	1	793	231	231	1332	1	22	23	46
386	HNHDW42	97976 04/04/97	Uni-ZAP XR	396	426	1	426	168	168	1333	1	26	27	71
387	HNHED17	209346 10/09/97	Uni-ZAP XR	397	843	1	843	274	274	1334	1	19	20	51
387	HNHED17	209346 10/09/97	Uni-ZAP XR	797	692	1	692	282	282	1734	1	19	20	48
388	HNHEI42	PTA-844 10/13/99	Uni-ZAP XR	398	2642	1	2642	52	52	1335	1	22	23	36
388	HNHEI42	PTA-844 10/13/99	Uni-ZAP XR	798	1654	1	1654	28	28	1735	1	22	23	36
388	HNHEI42	PTA-844 10/13/99	Uni-ZAP XR	799	447	1	447		166	1736	1	6	7	28
388	HNHEI42	PTA-844 10/13/99	Uni-ZAP XR	800	641	1	641		331	1737	1	3	4	34
389	HNHFO29	209138 07/03/97	Uni-ZAP XR	399	699	1	699	160	160	1336	1	21	22	180
390	HNHFR04	209683 03/20/98	Uni-ZAP XR	400	1681	1	1681	71	71	1337	1	21	22	78
391	HNHFO32	209407 10/23/97	Uni-ZAP XR	401	607	1	607	175	175	1338	1	30	31	52

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
392	HNHOD46	PTA-1543 03/21/00	Uni-ZAP XR	402	1355	1	1355	12	12	1339	1	20	21	80
393	HNHOG73	203570 01/11/99	Uni-ZAP XR	403	802	1	802	342	342	1340	1	19	20	51
394	HNHPD10	203570 01/11/99	Uni-ZAP XR	404	940	1	940	291	291	1341	1	33	34	40
395	HNTBI57	209423 10/30/97	pCMVSPORT 3.0	405	1365	134	1365	210	210	1342	1	26	27	58
396	HNTCE26	PTA-1544 03/21/00	pCMVSPORT 3.0	406	2163	830	2163	111	111	1343	1	30	31	402
396	HNTCE26	PTA-1544 03/21/00	pCMVSPORT 3.0	801	1763	1	1763	57	57	1738	1	28	29	121
397	HNTNC20	209782 04/20/98	pSport1	407	1979	1	1979	270	270	1344	1	19	20	218
398	HNTNI01	209782 04/20/98	pSport1	408	2087	1	2087	307	307	1345	1	33	34	76
398	HNTNI01	209782 04/20/98	pSport1	802	1274	1	1114	306	306	1739	1	33	34	49
399	HNTSY18	PTA-855 10/18/99	pSport1	409	1811	265	1783	257	257	1346	1	31	32	89
399	HNTSY18	PTA-855 10/18/99	pSport1	803	847	742	819		420	1740	1	1	2	79
400	HOAAC90	209236 09/04/97	Uni-ZAP XR	410	642	1	642	33	33	1347	1	15	16	104
400	HOAAC90	209236 09/04/97	Uni-ZAP XR	804	652	1	652	38	38	1741	1	15	16	104

Gene No.	cDNA Clone ID	ATCC Deposit No. and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
401	HOACB38	209243 09/12/97	Uni-ZAP XR	411	606	1	606	63	63	1348	1	21	22	40
402	HOCNF19	203570 01/11/99	pSport1	412	1118	1	1118	166	166	1349	1	20	21	87
403	HODDF13	203069 07/27/98	Uni-ZAP XR	413	830	1	830	46	46	1350	1	23	24	41
404	HODDN65	209244 09/12/97	Uni-ZAP XR	414	755	1	755	251	251	1351	1	14	15	20
405	HODDN92	209012 04/28/97 209089 06/05/97	Uni-ZAP XR	415	1939	294	1939		434	1352	1	26	27	35
406	HODDO08	203364 10/19/98	Uni-ZAP XR	416	1776	138	1284	725	725	1353	1	33	34	106
407	HODDW40	209463 11/14/97	Uni-ZAP XR	417	682	1	682	139	139	1354	1	19	20	40
408	HODEI32	203570 01/11/99	Uni-ZAP XR	418	739	1	739	358	358	1355	1	21	22	43
409	HODFN71	203570 01/11/99	Uni-ZAP XR	419	1126	1	1126		1	1356	1	1	2	159
409	HODFN71	203570 01/11/99	Uni-ZAP XR	805	1124	1	1124	27	27	1742	1	18	19	148
410	HODGE68	203570 01/11/99	Uni-ZAP XR	420	851	1	851	87	87	1357	1	26	27	59
411	HOEBK34	209224 08/28/97	Uni-ZAP XR	421	747	75	747	149	149	1358	1	20	21	165

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
411	HOEBK34	209224 08/28/97	Uni-ZAP XR	806	660	1	660	68	68	1743	1	26	27	88
412	HOEBZ89	203517 12/10/98	Uni-ZAP XR	422	2520	1	2520	19	19	1359	1	21	22	333
413	HOEDB32	209628 02/12/98	Uni-ZAP XR	423	1462	73	1462	104	104	1360	1	21	22	226
414	HOEDE28	PTA-844 10/13/99	Uni-ZAP XR	424	1635	1	1635	248	248	1361	1	21	22	117
414	HOEDE28	PTA-844 10/13/99	Uni-ZAP XR	807	1424	806	1424		387	1744	1	11	12	20
415	HOEDH84	209965 06/11/98	Uni-ZAP XR	425	2079	1	2079	256	256	1362	1	20	21	404
416	HOEFV61	203517 12/10/98	Uni-ZAP XR	426	2657	1	2657	64	64	1363	1	13	14	180
417	HOFMQ33	PTA-848 10/13/99	pCMVSPORT 2.0	427	2410	1	2410	49	49	1364	1	24	25	484
417	HOFMQ33	PTA-848 10/13/99	pCMVSPORT 2.0	808	2409	1	2409	48	48	1745	1	24	25	484
417	HOFMQ33	PTA-848 10/13/99	pCMVSPORT 2.0	809	876	1	876	78	78	1746	1	24	25	266
417	HOFMQ33	PTA-848 10/13/99	pCMVSPORT 2.0	810	1586	1	1586		724	1747	1			5
417	HOFMQ33	PTA-848 10/13/99	pCMVSPORT 2.0	811	1011	873	1011		123	1748	1	1	2	84
418	HOFMT75	PTA-848 10/13/99	pCMVSPORT 2.0	428	2131	6	2131	83	83	1365	1	20	21	410

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
418	HOFMT75	PTA-848 10/13/99	pCMVSPORT 2.0	812	427	1	427	83	83	1749	1	20	21	115
418	HOFMT75	PTA-848 10/13/99	pCMVSPORT 2.0	813	1500	1	1500		1225	1750	1	9	10	92
418	HOFMT75	PTA-848 10/13/99	pCMVSPORT 2.0	814	1234	337	1234	129	129	1751	1	20	21	368
419	HOFNC14	PTA-623 09/02/99	pCMVSPORT 2.0	429	2794	1	2794	79	79	1366	1	13	14	73
419	HOFNC14	PTA-623 09/02/99	pCMVSPORT 2.0	815	3095	1	3095	155	155	1752	1	13	14	72
420	HOFND85	PTA-1544 03/21/00	pCMVSPORT 2.0	430	2048	1	2048	167	167	1367	1	22	23	627
421	HOFNY91	PTA-1544 03/21/00	pCMVSPORT 2.0	431	2406	1	2406	64	64	1368	1	14	15	82
422	HOFOC33	PTA-848 10/13/99	pCMVSPORT 2.0	432	1669	1	1669	76	76	1369	1	21	22	363
422	HOFOC33	PTA-848 10/13/99	pCMVSPORT 2.0	816	518	1	518	81	81	1753	1	21	22	112
422	HOFOC33	PTA-848 10/13/99	pCMVSPORT 2.0	817	518	1	518	81	81	1754	1	17	18	112
422	HOFOC33	PTA-848 10/13/99	pCMVSPORT 2.0	818	1670	1	1670	76	76	1755	1	21	22	139
422	HOFOC33	PTA-848 10/13/99	pCMVSPORT 2.0	819	606	1	606		23	1756	1			7
422	HOFOC33	PTA-848 10/13/99	pCMVSPORT 2.0	820	841	1	841		158	1757	1	6	7	14

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
422	HOF0C33	PTA-848 10/13/99	pCMVSPORT 2.0	821	868	1	847		3	1758	1	1	2	288
423	HOF0C73	PTA-848 10/13/99	pCMVSPORT 2.0	433	1491	1	1491	18	18	1370	1	18	19	129
423	HOF0C73	PTA-848 10/13/99	pCMVSPORT 2.0	822	1395	1	1395	23	23	1759	1	18	19	67
423	HOF0C73	PTA-848 10/13/99	pCMVSPORT 2.0	823	270	1	270		127	1760	1	4	5	14
423	HOF0C73	PTA-848 10/13/99	pCMVSPORT 2.0	824	2324	662	2324	142	142	1761	1			6
424	HOGAW62	209463 11/14/97	pCMVSPORT 2.0	434	571	1	571	259	259	1371	1	25	26	55
425	HOGCK20	209853 05/07/98	pCMVSPORT 2.0	435	2087	1	2087	57	57	1372	1	23	24	522
425	HOGCK20	209853 05/07/98	pCMVSPORT 2.0	825	2075	1	2054		53	1762	1	22	23	554
426	HOGCK63	PTA-848 10/13/99	pCMVSPORT 2.0	436	1409	310	1409	514	514	1373	1	29	30	246
426	HOGCK63	PTA-848 10/13/99	pCMVSPORT 2.0	826	1697	144	1697		1455	1763	1			5
427	HOGCS52	PTA-848 10/13/99	pCMVSPORT 2.0	437	2571	1	2571	25	25	1374	1	22	23	453
427	HOGCS52	PTA-848 10/13/99	pCMVSPORT 2.0	827	2645	1	2586	30	30	1764	1	22	23	453
427	HOGCS52	PTA-848 10/13/99	pCMVSPORT 2.0	828	1098	457	638		2	1765	1	1	2	96

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
428	HOHBB49	203517 12/10/98	pCMVSPORT 2.0	438	3080	1	3080	148	148	1375	1	19	20	48
429	HOHBC68	209568 01/06/98	pCMVSPORT 2.0	439	1837	1	1837	348	348	1376	1	30	31	128
430	HOHBY12	209603 01/29/98	pCMVSPORT 2.0	440	1188	1	1188	232	232	1377	1	25	26	199
431	HOHBY44	PTA-867 10/26/99	pCMVSPORT 2.0	441	3369	1	3369	170	170	1378	1	24	25	184
431	HOHBY44	PTA-867 10/26/99	pCMVSPORT 2.0	829	1063	533	1063		2	1766	1	1	2	77
431	HOHBY44	PTA-867 10/26/99	pCMVSPORT 2.0	830	1178	1	1178		54	1767	1	1	2	84
432	HOHCC74	209346 10/09/97	pCMVSPORT 2.0	442	558	1	558	327	327	1379	1	20	21	48
433	HOHCH55	203331 10/08/98	pCMVSPORT 2.0	443	2499	1	2499	221	221	1380	1	23	24	494
433	HOHCH55	203331 10/08/98	pCMVSPORT 2.0	831	2522	1	2522	230	230	1768	1	23	24	469
434	HONAH29	209138 07/03/97	pBluescript SK-	444	1623	1	1623	136	136	1381	1	25	26	211
434	HONAH29	209138 07/03/97	pBluescript SK-	832	1637	17	1637	144	144	1769	1	25	26	211
435	HOSDI25	209423 10/30/97	Uni-ZAP XR	445	2214	985	2214	1076	1076	1382	1	18	19	40
435	HOSDI25	209423 10/30/97	Uni-ZAP XR	833	1258	1	1258	146	146	1770	1	18	19	40



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
436	HOSEG51	209324 10/02/97	Uni-ZAP XR	446	590	48	590	232	232	1383	1	31	32	102
437	HOSFD58	97957 03/13/97 209073 05/22/97	Uni-ZAP XR	447	2527	290	1747	56	56	1384	1	30	31	624
437	HOSFD58	97957 03/13/97 209073 05/22/97	Uni-ZAP XR	834	2527	288	1747	477	477	1771	1	32	33	61
438	HOUQC17	209086 05/29/97	Uni-ZAP XR	448	4712	1	4693	508	508	1385	1	51	52	967
439	HOUDK26	209423 10/30/97	Uni-ZAP XR	449	1051	1	1051	214	214	1386	1	30	31	174
440	HOVCA92	209299 09/25/97	pSport1	450	707	1	488	181	181	1387	1	20	21	62
441	HPASA81	203181 09/09/98	Uni-ZAP XR	451	1945	1	1945	19	19	1388	1	17	18	600
441	HPASA81	203181 09/09/98	Uni-ZAP XR	835	1971	2	1971	14	14	1772	1	17	18	315
441	HPASA81	203181 09/09/98	Uni-ZAP XR	836	2081	1	2081	124	124	1773	1	17	18	72
442	HPBCU51	97977 04/04/97 209082 05/29/97	pBluescript SK-	452	599	1	599	86	86	1389	1	27	28	119

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
443	HPDDC77	209012 04/28/97 209089 06/05/97	pBluescript SK-	453	978	1	978	51	51	1390	1	29	30	131
443	HPDDC77	209012 04/28/97 209089 06/05/97	pBluescript SK-	837	2361	455	1442	510	510	1774	1	29	30	131
444	HPDWP28	PTA-2076 06/09/00	pSport1	454	528	1	528	143	143	1391	1	29	30	49
444	HPDWP28	PTA-2076 06/09/00	pSport1	838	510	1	500	133	133	1775	1	29	30	49
445	HPEAD48	209244 09/12/97	Uni-ZAP XR	455	625	1	625	203	203	1392	1	18	19	97
446	HPEBE79	209241 09/12/97	Uni-ZAP XR	456	597	1	597	79	79	1393	1	11	12	15
447	HPFCL43	209299 09/25/97	Uni-ZAP XR	457	665	1	665	21	21	1394	1	17	18	79
448	HPFDG48	209324 10/02/97	Uni-ZAP XR	458	723	165	700	283	283	1395	1	18	19	47
449	HPIAQ68	203517 12/10/98	Uni-ZAP XR	459	2466	1	2466	20	20	1396	1	22	23	62
450	HPIBO15	209563 12/18/97	Uni-ZAP XR	460	1739	1	1739	128	128	1397	1	18	19	211
450	HPIBO15	209563 12/18/97	Uni-ZAP XR	839	1739	1	1739	127	127	1776	1	18	19	173

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
451	HPICB53	PTA-846 10/13/99	Uni-ZAP XR	461	1139	1	1139	170	170	1398	1	23	24	51
451	HPICB53	PTA-846 10/13/99	Uni-ZAP XR	840	438	1	438	163	163	1777	1	23	24	51
452	HPJBK12	PTA-855 10/18/99	Uni-ZAP XR	462	2648	1	2648	126	126	1399	1	18	19	48
452	HPJBK12	PTA-855 10/18/99	Uni-ZAP XR	841	538	1	538	119	119	1778	1	18	19	48
452	HPJBK12	PTA-855 10/18/99	Uni-ZAP XR	842	1346	1	1346		969	1779	1			10
452	HPJBK12	PTA-855 10/18/99	Uni-ZAP XR	843	912	1	912	509	509	1780	1			4
453	HPJCL22	PTA-2071 06/09/00	Uni-ZAP XR	463	3107	1	3107	86	86	1400	1	35	36	80
453	HPJCL22	PTA-2071 06/09/00	Uni-ZAP XR	844	995	58	995	136	136	1781	1	35	36	80
453	HPJCL22	PTA-2071 06/09/00	Uni-ZAP XR	845	751	183	751		232	1782	1	1	2	145
454	HPJCW04	209551 12/12/97	Uni-ZAP XR	464	1466	1	1466	44	44	1401	1	19	20	57
455	HPJEX20	PTA-872 10/26/99	Uni-ZAP XR	465	566	1	566	23	23	1402	1	26	27	174
455	HPJEX20	PTA-872 10/26/99	Uni-ZAP XR	846	1823	1	1823	31	31	1783	1	23	24	115
455	HPJEX20	PTA-872 10/26/99	Uni-ZAP XR	847	1964	1	1964	170	170	1784	1	23	24	174

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
455	HPJEX20	PTA-872 10/26/99	Uni-ZAP XR	848	769	1	769	84	84	1785	1	23	24	228
455	HPJEX20	PTA-872 10/26/99	Uni-ZAP XR	849	818	1	818		565	1786	1	1	2	84
456	HPMAI22	209683 03/20/98	Uni-ZAP XR	466	1274	334	1274	483	483	1403	1	16	17	59
457	HPMFP40	209628 02/12/98	Uni-ZAP XR	467	1217	1	1217	37	37	1404	1	24	25	44
458	HPMG145	203105 08/13/98	Uni-ZAP XR	468	1656	1	1656	119	119	1405	1	25	26	48
459	HPQAC69	97979 03/27/97	Lambda ZAP II	469	990	1	988	82	82	1406	1	19	20	37
460	HPRBC80	209852 05/07/98	Uni-ZAP XR	470	2543	1245	2543	94	94	1407	1	30	31	387
460	HPRBC80	209852 05/07/98	Uni-ZAP XR	850	2052	275	2032	404	404	1787	1	26	27	69
461	HPRBF19	203517 12/10/98	Uni-ZAP XR	471	1461	1	1461	63	63	1408	1	31	32	190
462	HPTTG19	209628 02/12/98	Uni-ZAP XR	472	559	1	559	215	215	1409	1	16	17	49
463	HPTVX32	209628 02/12/98	pBluescript	473	803	215	803	318	318	1410	1	26	27	80
464	HPVAB94	209244 09/12/97	Uni-ZAP XR	474	819	1	819	80	80	1411	1	25	26	44
465	HPWAY46	PTA-843 10/13/99	Uni-ZAP XR	475	1414	1	1414	468	468	1412	1	30	31	52

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
465	HPWAY46	PTA-843 10/13/99	Uni-ZAP XR	851	891	1	891	474	474	1788	1	30	31	52
465	HPWAY46	PTA-843 10/13/99	Uni-ZAP XR	852	501	120	501		178	1789	1	1	2	86
466	HPWDJ42	209852 05/07/98	Uni-ZAP XR	476	1340	1	1340	149	149	1413	1	18	19	54
466	HPWDJ42	209852 05/07/98	Uni-ZAP XR	853	1340	1	1340	149	149	1790	1	21	22	54
466	HPWDJ42	209852 05/07/98	Uni-ZAP XR	854	813	1	813	161	161	1791	1	18	19	47
467	HPZAB47	209511 12/03/97	pBluescript	477	1676	1	1676	34	34	1414	1	18	19	47
468	HRAAB15	209651 03/04/98	pCMVSPORT 3.0	478	1747	1	1747	35	35	1415	1	14	15	159
469	HRABA80	209889 05/22/98	pCMVSPORT 3.0	479	1251	1	1251	144	144	1416	1	27	28	102
469	HRABA80	209889 05/22/98	pCMVSPORT 3.0	855	1237	1	1237	130	130	1792	1	27	28	102
470	HRACD15	209852 05/07/98	pCMVSPORT 3.0	480	1539	24	1539	252	252	1417	1	40	41	53
470	HRACD15	209852 05/07/98	pCMVSPORT 3.0	856	1681	24	1453	252	252	1793	1	40	41	53
471	HRACD80	209889 05/22/98	pCMVSPORT 3.0	481	1941	1	1941	196	196	1418	1	16	17	575
471	HRACD80	209889 05/22/98	pCMVSPORT 3.0	857	1934	1	1934	191	191	1794	1	16	17	575

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
471	HRACD80	209889 05/22/98	pCMVSPORT 3.0	858	1958	1	1958	191	191	1795	1	16	17	146
472	HRDDV47	209628 02/12/98	Uni-ZAP XR	482	1510	1	1510	146	146	1419	1	30	31	276
473	HRDFD27	209423 10/30/97	Uni-ZAP XR	483	805	1	805	82	82	1420	1	35	36	83
474	HROAJ03	209423 10/30/97	Uni-ZAP XR	484	1182	1	1182	19	19	1421	1	20	21	192
475	HRTAE58	209241 09/12/97	pBluescript SK-	485	600	1	600	244	244	1422	1	18	19	58
476	HSA TR82	209299 09/25/97	Uni-ZAP XR	486	777	1	777	74	74	1423	1	15	16	41
477	HSAUK57	209148 07/17/97	Uni-ZAP XR	487	1037	1	1037	322	322	1424	1	26	27	83
477	HSAUK57	209148 07/17/97	Uni-ZAP XR	859	1070	1	1070	327	327	1796	1	26	27	48
478	HSAUL82	209148 07/17/97	Uni-ZAP XR	488	727	1	727	140	140	1425	1	25	26	49
479	HSAVH65	209651 03/04/98	Uni-ZAP XR	489	600	1	600	104	104	1426	1	21	22	100
480	HSAVK10	209368 10/16/97	Uni-ZAP XR	490	1242	1	1242	131	131	1427	1	32	33	40
481	HSAWD74	209126 06/19/97	Uni-ZAP XR	491	970	106	970	142	142	1428	1	26	27	142
481	HSAWD74	209126 06/19/97	Uni-ZAP XR	860	646	1	646	122	122	1797	1	29	30	45

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
482	HSAWZ41	209463 11/14/97	Uni-ZAP XR	492	1388	1	1388	98	98	1429	1	24	25	57
483	HSAXA83	209324 10/02/97	Uni-ZAP XR	493	649	1	649	92	92	1430	1	22	23	74
484	HSAYB43	209568 01/06/98	Uni-ZAP XR	494	1699	37	1699	89	89	1431	1	14	15	45
485	HSAYM40	209139 07/03/97	Uni-ZAP XR	495	433	1	433	190	190	1432	1	19	20	63
486	HSDAJ46	209746 04/07/98	Uni-ZAP XR	496	1537	92	1537	299	299	1433	1	18	19	262
487	HSDEK49	209603 01/29/98	Uni-ZAP XR	497	1782	1	1782	60	60	1434	1	19	20	399
487	HSDEK49	209603 01/29/98	Uni-ZAP XR	861	1590	96	1590	126	126	1798	1	21	22	305
488	HSDER95	209683 03/20/98	Uni-ZAP XR	498	574	1	574	72	72	1435	1	25	26	71
489	HSDEZ20	209852 05/07/98	Uni-ZAP XR	499	795	1	795	58	58	1436	1	41	42	122
489	HSDEZ20	209852 05/07/98	Uni-ZAP XR	862	1540	1	1540	66	66	1799	1	41	42	97
490	HSDFW45	209551 12/12/97	Uni-ZAP XR	500	1742	1	1742	118	118	1437	1	19	20	70
491	HSDJA15	203081 07/30/98	Uni-ZAP XR	501	1443	1	1443	247	247	1438	1	20	21	152
492	HSDJJ82	209126 06/19/97	Uni-ZAP XR	502	462	1	462	79	79	1439	1	32	33	52

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
493	HSDJL42	PTA-884 10/28/99	Uni-ZAP XR	503	2541	1	2523	84	84	1440	1	33	34	217
493	HSDJL42	PTA-884 10/28/99	Uni-ZAP XR	863	2467	1	2467	27	27	1800	1	35	36	219
493	HSDJL42	PTA-884 10/28/99	Uni-ZAP XR	864	2541	1	2523	78	78	1801	1	35	36	219
494	HSDJM31	209148 07/17/97	Uni-ZAP XR	504	561	1	561	351	351	1441	1	25	26	40
495	HSDSB09	209145 07/17/97	pBluescript	505	809	1	809	16	16	1442	1	17	18	135
495	HSDSB09	209145 07/17/97	pBluescript	865	819	1	819	22	22	1802	1	17	18	121
496	HSDSE75	209324 10/02/97	pBluescript	506	1151	1	1151	160	160	1443	1	18	19	181
497	HSDZR57	209641 02/25/98	pBluescript	507	308	1	308	27	27	1444	1	27	28	61
498	HSHAX21	209853 05/07/98	Uni-ZAP XR	508	1986	1	1986	177	177	1445	1	13	14	72
499	HSIAS17	209226 08/28/97	Uni-ZAP XR	509	1781	1	1781	431	431	1446	1	22	23	257
499	HSIAS17	209226 08/28/97	Uni-ZAP XR	866	1448	1	1224	108	108	1803	1	23	24	218
500	HSICV24	209580 01/14/98	Uni-ZAP XR	510	1410	1	1410	117	117	1447	1	16	17	256
500	HSICV24	209580 01/14/98	Uni-ZAP XR	867	1450	1	1450	150	150	1804	1	15	16	58



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
501	HSIDJ81	209551 12/12/97	Uni-ZAP XR	511	1303	1	1303	8	8	1448	1	22	23	58
502	HSIDX71	PTA-843 10/13/99	Uni-ZAP XR	512	2118	1	2118	200	200	1449	1	41	42	59
502	HSIDX71	PTA-843 10/13/99	Uni-ZAP XR	868	1868	1	1868	200	200	1805	1	41	42	59
503	HSJBQ79	97924 03/07/97	Uni-ZAP XR	513	587	1	587	41	41	1450	1	23	24	182
503	HSJBQ79	97924 03/07/97	Uni-ZAP XR	869	1507	164	608	57	57	1806	1	19	20	327
503	HSJBQ79	97924 03/07/97	Uni-ZAP XR	870	586	4	586	35	35	1807	1	23	24	184
504	HSKCP69	209009 04/28/97	Uni-ZAP XR	514	1251	219	1120	49	49	1451	1	27	28	286
504	HSKCP69	209009 04/28/97	Uni-ZAP XR	871	1250	223	1250	393	393	1808	1	31	32	171
505	HSKDA27	PTA-322 07/09/99	Uni-ZAP XR	515	4412	1	4412	786	786	1452	1	24	25	950
505	HSKDA27	PTA-322 07/09/99	Uni-ZAP XR	872	1792	134	1792	127	127	1809	1	21	22	509
505	HSKDA27	PTA-322 07/09/99	Uni-ZAP XR	873	1673	1	1673	12	12	1810	1	21	22	554
506	HSKHZ81	209346 10/09/97	pBluescript	516	969	1	969	64	64	1453	1	27	28	247
506	HSKHZ81	209346 10/09/97	pBluescript	874	988	1	967	57	57	1811	1	27	28	247

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
507	HSKNB56	209346 10/09/97	pBluescript	517	1334	449	1334	484	484	1454	1	25	26	85
508	HSLCQ82	209551 12/12/97	Uni-ZAP XR	518	1476	1	1476	226	226	1455	1	28	29	84
508	HSLCQ82	209551 12/12/97	Uni-ZAP XR	875	1501	1	1501	233	233	1812	1	22	23	57
509	HSLJG37	PTA-855 10/18/99	Uni-ZAP XR	519	2126	1	2126	114	114	1456	1	16	17	42
509	HSLJG37	PTA-855 10/18/99	Uni-ZAP XR	876	1083	1	1083	206	206	1813	1	16	17	42
509	HSLJG37	PTA-855 10/18/99	Uni-ZAP XR	877	1904	1	1904		1331	1814	1			6
510	HSODE04	PTA-855 10/18/99	Uni-ZAP XR	520	1370	1	1370	202	202	1457	1	20	21	41
510	HSODE04	PTA-855 10/18/99	Uni-ZAP XR	878	1937	1	1937	300	300	1815	1	20	21	41
511	HSPBF70	203105 08/13/98	pSport1	521	1397	288	1397	429	429	1458	1	19	20	97
512	HSQE084	97974 04/04/97 209080 05/29/97	Uni-ZAP XR	522	931	1	931	87	87	1459	1	20	21	218
512	HSQE084	97974 04/04/97 209080 05/29/97	Uni-ZAP XR	879	971	13	971	91	91	1816	1	19	20	218

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
512	HSQEO84	97974 04/04/97 209080 05/29/97	Uni-ZAP XR	880	968	8	968	86	86	1817	1	20	21	56
513	HSSAJ29	209626 02/12/98	Uni-ZAP XR	523	1044	1	1044	103	103	1460	1	25	26	47
514	HSSDX51	209683 03/20/98	Uni-ZAP XR	524	1143	1	1143	133	133	1461	1	20	21	50
515	HSSFT08	209551 12/12/97	Uni-ZAP XR	525	791	1	791	125	125	1462	1	34	35	58
516	HSSGD52	PTA-1543 03/21/00	Uni-ZAP XR	526	2425	1	2425	344	344	1463	1	32	33	606
516	HSSGD52	PTA-1543 03/21/00	Uni-ZAP XR	881	2460	105	2460	338	338	1818	1	27	28	606
517	HSSGG82	209580 01/14/98	Uni-ZAP XR	527	1543	186	1543	203	203	1464	1	17	18	62
518	HSSJC35	209853 05/07/98	Uni-ZAP XR	528	1174	1	1174	62	62	1465	1	28	29	295
518	HSSJC35	209853 05/07/98	Uni-ZAP XR	882	1163	1	1163	55	55	1819	1	30	31	295
518	HSSJC35	209853 05/07/98	Uni-ZAP XR	883	1183	1	1183	66	66	1820	1	30	31	37
519	HSTBJ86	203027 06/26/98	Uni-ZAP XR	529	1766	1	1766	120	120	1466	1	24	25	83

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
520	HSUBW09	209007 04/28/97 209083 05/29/97	Uni-ZAP XR	530	1021	1	1021	153	153	1467	1	31	32	56
521	HSVAM10	209244 09/12/97	Uni-ZAP XR	531	433	1	433	46	46	1468	1	27	28	51
522	HSVAT68	209641 02/25/98	Uni-ZAP XR	532	1155	1	1155	63	63	1469	1	25	26	88
523	HSVBU91	209603 01/29/98	Uni-ZAP XR	533	727	1	727	256	256	1470	1	18	19	90
524	HSXCG83	203570 01/11/99	Uni-ZAP XR	534	2112	233	1573	101	101	1471	1	45	46	267
524	HSXCG83	203570 01/11/99	Uni-ZAP XR	884	1938	58	1399	211	211	1821	1	22	23	172
525	HSXEQ06	PTA-847 10/13/99	Uni-ZAP XR	535	1598	1	1598	123	123	1472	1	24	25	60
525	HSXEQ06	PTA-847 10/13/99	Uni-ZAP XR	885	768	21	768	136	136	1822	1	24	25	60
525	HSXEQ06	PTA-847 10/13/99	Uni-ZAP XR	886	1392	1	1392		1271	1823	1	9	10	17
526	HSXGI47	PTA-499 08/11/99	Uni-ZAP XR	536	1256	1	1256	87	87	1473	1	21	22	57
527	HSYAV50	PTA-1544 03/21/00	pCMV Sport 3.0	537	2801	1	2801	155	155	1474	1	23	24	672
528	HSYAV66	209746 04/07/98	pCMV Sport 3.0	538	1407	1	1407	186	186	1475	1	28	29	69

Gene No.	cDNA Clone ID	ATCC Deposit No. Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
529	HSYAZ50	PTA-849 10/13/99	pCMVSPORT 3.0	539	1097	1	1097	131	131	1476	1	18	19	56
529	HSYAZ50	PTA-849 10/13/99	pCMVSPORT 3.0	887	768	226	768	345	345	1824	1	18	19	56
529	HSYAZ50	PTA-849 10/13/99	pCMVSPORT 3.0	888	2087	770	875		723	1825	1	1	2	106
529	HSYAZ50	PTA-849 10/13/99	pCMVSPORT 3.0	889	2096	1767	2050		2	1826	1	1	2	279
530	HSYAZ63	PTA-163 06/01/99	pCMVSPORT 3.0	540	3466	1655	3347	448	448	1477	1	30	31	434
530	HSYAZ63	PTA-163 06/01/99	pCMVSPORT 3.0	890	1707	1	1707	215	215	1827	1	21	22	40
531	HSYBG37	209463 11/14/97	pCMVSPORT 3.0	541	1238	1	1238	47	47	1478	1	24	25	305
531	HSYBG37	209463 11/14/97	pCMVSPORT 3.0	891	1239	1	1239	48	48	1828	1	24	25	305
532	HSZAF47	209124 06/19/97	Uni-ZAP XR	542	1304	1	1304	106	106	1479	1	16	17	289
532	HSZAF47	209124 06/19/97	Uni-ZAP XR	892	1333	2	1333	107	107	1829	1	18	19	127
533	HT3SF53	PTA-499 08/11/99	Uni-ZAP XR	543	1926	1	1926	184	184	1480	1	27	28	68
534	HT5GJ57	209889 05/22/98	Uni-ZAP XR	544	1773	1	1773	105	105	1481	1	25	26	243
534	HT5GJ57	209889 05/22/98	Uni-ZAP XR	893	1797	92	1797	122	122	1830	1	25	26	190

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
535	HTADW91	PTA-1543 03/21/00	Uni-ZAP XR	545	1481	54	1481	59	59	1482	1	32	33	364
536	HTADX17	209124 06/19/97	Uni-ZAP XR	546	1147	0	1148	92	92	1483	1	23	24	142
536	HTADX17	209124 06/19/97	Uni-ZAP XR	894	1140	22	1140	84	84	1831	1	19	20	142
537	HTAEE28	PTA-843 10/13/99	Uni-ZAP XR	547	1341	1	1341	319	319	1484	1	33	34	282
537	HTAEE28	PTA-843 10/13/99	Uni-ZAP XR	895	738	159	738	372	372	1832	1	33	34	122
537	HTAEE28	PTA-843 10/13/99	Uni-ZAP XR	896	935	1	807		124	1833	1	1	2	216
538	HTDAF28	97974 04/04/97 209080 05/29/97	pSport1	548	912	1	912	38	38	1485	1	22	23	87
539	HTEAF65	PTA-322 07/09/99	Uni-ZAP XR	549	563	1	563	135	135	1486	1	19	20	75
540	HTEBI28	209177 07/24/97	Uni-ZAP XR	550	413	1	413	43	43	1487	1	20	21	67
541	HTEDF80	209511 12/03/97	Uni-ZAP XR	551	1306	1	1306	696	696	1488	1	21	22	126
542	HTEDY42	209241 09/12/97	Uni-ZAP XR	552	754	1	754	19	19	1489	1	23	24	233
542	HTEDY42	209241 09/12/97	Uni-ZAP XR	897	810	1	810	19	19	1834	1	23	24	77

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
543	HTEFU65	209324 10/02/97	Uni-ZAP XR	553	1028	1	1028	231	231	1490	1	24	25	46
544	HTEGA76	97958 03/13/97 209072 05/22/97	Uni-ZAP XR	554	450	1	450	90	90	1491	1	43	44	65
545	HTEGI42	PTA-842 10/13/99	Uni-ZAP XR	555	978	1	978	26	26	1492	1	19	20	257
545	HTEGI42	PTA-842 10/13/99	Uni-ZAP XR	898	1092	1	1092	145	145	1835	1	19	20	257
545	HTEGI42	PTA-842 10/13/99	Uni-ZAP XR	899	284	1	133		1	1836	1	1	2	94
545	HTEGI42	PTA-842 10/13/99	Uni-ZAP XR	900	1494	754	937		1081	1837	1	1	2	82
545	HTEGI42	PTA-842 10/13/99	Uni-ZAP XR	901	1014	1	806		670	1838	1	1	2	60
546	HTEHR24	209224 08/28/97	Uni-ZAP XR	556	1075	50	1075	84	84	1493	1	29	30	163
546	HTEHR24	209224 08/28/97	Uni-ZAP XR	902	1038	1	1038	41	41	1839	1	28	29	124
547	HTEHU93	209090 06/05/97	Uni-ZAP XR	557	738	1	738	188	188	1494	1	24	25	142
547	HTEHU93	209090 06/05/97	Uni-ZAP XR	903	745	1	745	187	187	1840	1	24	25	113
548	HTEIP36	209244 09/12/97	Uni-ZAP XR	558	752	1	752	22	22	1495	1	19	20	58

Gene No.	cDNA Clone ID	ATCC Deposit No. and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
549	HTEIV80	209511 12/03/97	Uni-ZAP XR	559	1748	1	1748	203	203	1496	1	14	15	47
550	HTEIN13	97958 03/13/97 209072 05/22/97	Uni-ZAP XR	560	1094	1	1094	156	156	1497	1	15	16	208
550	HTEIN13	97958 03/13/97 209072 05/22/97	Uni-ZAP XR	904	1147	1	1147	163	163	1841	1	15	16	159
550	HTEIN13	97958 03/13/97 209072 05/22/97	Uni-ZAP XR	905	1134	1	1134	155	155	1842	1	19	20	71
551	HTELM16	203648 02/09/99	Uni-ZAP XR	561	531	1	531	121	121	1498	1	21	22	84
552	HTEPG70	203570 01/11/99	Uni-ZAP XR	562	813	1	813	365	365	1499	1	27	28	89
553	HTGAU75	209563 12/18/97	Uni-ZAP XR	563	1713	1	1713	149	149	1500	1	33	34	142
554	HTGEP89	97977 04/04/97 209082 05/29/97	Uni-ZAP XR	564	703	1	703	285	285	1501	1	29	30	94
555	HTHBG43	PTA-843 10/13/99	Uni-ZAP XR	565	848	1	848	47	47	1502	1			39



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
555	HTHBG43	PTA-843 10/13/99	Uni-ZAP XR	906	632	103	632	149	149	1843	1			39
556	HTHCA18	PTA-844 10/13/99	Uni-ZAP XR	566	1818	1	1818	231	231	1503	1	15	16	38
556	HTHCA18	PTA-844 10/13/99	Uni-ZAP XR	907	2036	1	2036	224	224	1844	1	15	16	38
557	HTHDJ94	209746 04/07/98	Uni-ZAP XR	567	1632	20	1632	66	66	1504	1	26	27	292
558	HTHDS25	203071 07/27/98	Uni-ZAP XR	568	1061	1	1061	70	70	1505	1	15	16	90
559	HTJMA95	209853 05/07/98	pCMVSPORT 2.0	569	1650	198	1569	527	527	1506	1	22	23	181
560	HTJML75	PTA-868 10/26/99	pCMVSPORT 2.0	570	2762	1	2762	30	30	1507	1	1	2	822
560	HTJML75	PTA-868 10/26/99	pCMVSPORT 2.0	908	2694	21	2694		335	1845	1	20	21	64
561	HTLAA40	209241 09/12/97	Uni-ZAP XR	571	956	1	956	33	33	1508	1	28	29	71
562	HTLBE23	PTA-842 10/13/99	Uni-ZAP XR	572	1216	1	1216	129	129	1509	1	17	18	45
562	HTLBE23	PTA-842 10/13/99	Uni-ZAP XR	909	810	286	810		205	1846	1			5
563	HTLEP53	209641 02/25/98	Uni-ZAP XR	573	818	1	818	73	73	1510	1	43	44	101
564	HTLFE42	209138 07/03/97	Uni-ZAP XR	574	712	1	712	116	116	1511	1	22	23	77

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
565	HTLFE57	PTA-1543 03/21/00	Uni-ZAP XR	575	2248	1	2248	124	124	1512	1	17	18	188
565	HTLFE57	PTA-1543 03/21/00	Uni-ZAP XR	910	2298	1157	2214	189	189	1847	1	18	19	170
565	HTLFE57	PTA-1543 03/21/00	Uni-ZAP XR	911	928	1	928	110	110	1848	1	18	19	170
566	HTLGE31	PTA-2081 06/09/00	Uni-ZAP XR	576	534	1	534	51	51	1513	1	17	18	86
567	HTLHY14	203648 02/09/99	Uni-ZAP XR	577	1032	1	1032	36	36	1514	1	17	18	246
568	HTLIT32	203570 01/11/99	Uni-ZAP XR	578	1074	164	897	288	288	1515	1	26	27	246
569	HTLIV19	PTA-2081 06/09/00	Uni-ZAP XR	579	978	1	978	110	110	1516	1	33	34	84
570	HTNBO91	209241 09/12/97	pBluescript SK-	580	300	1	300	7	7	1517	1	26	27	40
571	HTOAK16	209368 10/16/97	Uni-ZAP XR	581	1466	1	1466	87	87	1518	1	18	19	110
572	HTODK73	209244 09/12/97	Uni-ZAP XR	582	1019	4	1019	43	43	1519	1	23	24	59
573	HTODO72	209299 09/25/97	Uni-ZAP XR	583	973	1	973	183	183	1520	1	16	17	24
574	HTOGR42	209603 01/29/98	Uni-ZAP XR	584	1430	1	1430	14	14	1521	1	18	19	56
574	HTOGR42	209603 01/29/98	Uni-ZAP XR	912	1433	1	1433	13	13	1849	1	18	19	60

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
575	HTOIM15	PTA-843 10/13/99	Uni-ZAP XR	585	1949	1	1949	30	30	1522	1	20	21	61
575	HTOIM15	PTA-843 10/13/99	Uni-ZAP XR	913	408	1	408	23	23	1850	1	20	21	61
575	HTOIM15	PTA-843 10/13/99	Uni-ZAP XR	914	1299	982	1274		71	1851	1	1	2	322
575	HTOIM15	PTA-843 10/13/99	Uni-ZAP XR	915	1669	1	1622		1555	1852	1	9	10	13
576	HTOHT18	209745 04/07/98	Uni-ZAP XR	586	1499	267	1499	433	433	1523	1	24	25	53
577	HTOIY21	209852 05/07/98	Uni-ZAP XR	587	1558	1	1558	91	91	1524	1	14	15	231
578	HTOIZ02	PTA-843 10/13/99	Uni-ZAP XR	588	549	1	549	243	243	1525	1	16	17	50
578	HTOIZ02	PTA-843 10/13/99	Uni-ZAP XR	916	1369	746	1345		2	1853	1	1	2	240
579	HTOJA73	203105 08/13/98	Uni-ZAP XR	589	1294	1	1294	100	100	1526	1	21	22	41
580	HTOJK60	209324 10/02/97	Uni-ZAP XR	590	904	1	904	217	217	1527	1	18	19	32
581	HTPBW79	209511 12/03/97	Uni-ZAP XR	591	1374	1	1374	178	178	1528	1	22	23	362
581	HTPBW79	209511 12/03/97	Uni-ZAP XR	917	1515	118	1507	302	302	1854	1	24	25	362
581	HTPBW79	209511 12/03/97	Uni-ZAP XR	918	1404	1	1404	92	92	1855	1	22	23	415

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
582	HTSEW17	209138 07/03/97	pBluescript	592	652	1	652	170	170	1529	1	34	35	37
583	HTTDB46	203484 11/17/98	Uni-ZAP XR	593	3059	1	3059	55	55	1530	1	17	18	318
583	HTTDB46	203484 11/17/98	Uni-ZAP XR	919	2008	215	2008	153	153	1856	1	17	18	461
584	HTWCT03	209086 05/29/97	pSport1	594	1963	1	1963	334	334	1531	1	26	27	101
585	HTWDF76	209852 05/07/98	pSport1	595	963	1	963	316	316	1532	1	24	25	85
586	HTXAJ12	209423 10/30/97	Uni-ZAP XR	596	675	1	675	91	91	1533	1	18	19	111
586	HTXAJ12	209423 10/30/97	Uni-ZAP XR	920	675	1	675	91	91	1857	1	18	19	111
587	HTXCV12	209423 10/30/97	Uni-ZAP XR	597	1134	1	1134	175	175	1534	1	27	28	102
587	HTXCV12	209423 10/30/97	Uni-ZAP XR	921	1162	1	1162	183	183	1858	1	27	28	91
588	HTXDW56	209746 04/07/98	Uni-ZAP XR	598	1583	1	1583	217	217	1535	1	21	22	201
589	HTXFL30	209603 01/29/98	Uni-ZAP XR	599	1991	1	1991	30	30	1536	1	39	40	102
590	HTXKF95	PTA-622 09/02/99	Uni-ZAP XR	600	975	170	966	421	421	1537	1	28	29	78
590	HTXKF95	PTA-622 09/02/99	Uni-ZAP XR	922	884	79	875	330	330	1859	1	28	29	78

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
591	HTXKP61	203364 10/19/98	Uni-ZAP XR	601	1209	1	1209	169	169	1538	1	33	34	42
592	HUDBZ89	209407 10/23/97	ZAP Express	602	2135	1	2135	1085	1085	1539	1	17	18	73
592	HUDBZ89	209407 10/23/97	ZAP Express	923	1265	1	1265	197	197	1860	1	17	18	54
593	HUFBY15	PTA-1543 03/21/00	pSport1	603	1193	1	1193	49	49	1540	1	26	27	159
593	HUFBY15	PTA-1543 03/21/00	pSport1	924	1012	1	1012	74	74	1861	1	26	27	145
594	HUFEF62	209852 05/07/98	pSport1	604	518	1	518	190	190	1541	1	28	29	68
594	HUFEF62	209852 05/07/98	pSport1	925	539	1	539	182	182	1862	1	28	29	68
595	HUKAH51	209568 01/06/98	Lambda ZAP II	605	853	1	853	286	286	1542	1	20	21	151
595	HUKAH51	209568 01/06/98	Lambda ZAP II	926	754	1	754	144	144	1863	1	22	23	142
595	HUKAH51	209568 01/06/98	Lambda ZAP II	927	667	1	667	55	55	1864	1	22	23	119
596	HUKBT29	209746 04/07/98	Lambda ZAP II	606	1757	56	1757	74	74	1543	1	19	20	506
597	HUSIG64	209423 10/30/97	pSport1	607	1010	1	1010	9	9	1544	1	21	22	334
598	HUSXS50	209651 03/04/98	pSport1	608	2561	1	2561	280	280	1545	1	19	20	522

Gene No.	cDNA Clone ID	ATCC Deposit No.:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
598	HUSXS50	209651 03/04/98	pSport1	928	2025	1098	1997	281	281	1865	1	30	31	462
598	HUSXS50	209651 03/04/98	pSport1	929	1020	1	1020	179	179	1866	1	23	24	174
599	HVARW53	PTA-2076 06/09/00	pSport1	609	1015	1	1015	111	111	1546	1	34	35	186
599	HVARW53	PTA-2076 06/09/00	pSport1	930	1006	1	1006	96	96	1867	1	34	35	164
600	HWAAD63	203570 01/11/99	pCMVSPORT 3.0	610	3308	1	3308	322	322	1547	1	30	31	168
600	HWAAD63	203570 01/11/99	pCMVSPORT 3.0	931	3306	1	3306	322	322	1868	1	30	31	53
600	HWAAD63	203570 01/11/99	pCMVSPORT 3.0	932	2194	1	2194	312	312	1869	1	30	31	169
601	HWABA81	209463 11/14/97	pCMVSPORT 3.0	611	866	1	866	57	57	1548	1	21	22	48
602	HWABY10	203071 07/27/98	pCMVSPORT 3.0	612	2950	78	2914	263	263	1549	1	22	23	168
603	HWADJ89	PTA-1543 03/21/00	pCMVSPORT 3.0	613	1769	529	1769	581	581	1550	1	1	2	43
604	HWBAO62	209603 01/29/98	pCMVSPORT 3.0	614	1903	1	1903	52	52	1551	1	30	31	212
604	HWBAO62	209603 01/29/98	pCMVSPORT 3.0	933	1940	1	1940	81	81	1870	1	30	31	101
605	HWBAR88	PTA-867 10/26/99	pCMVSPORT 3.0	615	1051	1	1051	156	156	1552	1	18	19	75

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
606	HWBCB89	PTA-499 08/11/99	pCMVSPORT 3.0	616	1317	3	1317	37	37	1553	1	19	20	187
606	HWBCB89	PTA-499 08/11/99	pCMVSPORT 3.0	934	1315	1	1315	35	35	1871	1	19	20	187
607	HWBCP79	209641 02/25/98	pCMVSPORT 3.0	617	1138	1	1138	243	243	1554	1	21	22	105
607	HWBCP79	209641 02/25/98	pCMVSPORT 3.0	935	1138	1	1138	233	233	1872	1	21	22	105
608	HWBDP28	209641 02/25/98	pCMVSPORT 3.0	618	1841	1	1841	1342	1342	1555	1	25	26	67
608	HWBDP28	209641 02/25/98	pCMVSPORT 3.0	936	314	1	314	132	132	1873	1	25	26	61
609	HWBFE57	PTA-868 10/26/99	pCMVSPORT 3.0	619	1133	36	1133	227	227	1556	1	36	37	302
609	HWBFE57	PTA-868 10/26/99	pCMVSPORT 3.0	937	5811	3302	5811		3300	1874	1	16	17	37
609	HWBFE57	PTA-868 10/26/99	pCMVSPORT 3.0	938	1012	1	1012		622	1875	1	10	11	16
610	HWDAC39	209641 02/25/98	pCMVSPORT 3.0	620	753	1	753	96	96	1557	1	20	21	110
610	HWDAC39	209641 02/25/98	pCMVSPORT 3.0	939	734	1	734	85	85	1876	1	20	21	117
611	HWDAH38	PTA-868 10/26/99	pCMVSPORT 3.0	621	1604	1	1604	255	255	1558	1	20	21	40
611	HWDAH38	PTA-868 10/26/99	pCMVSPORT 3.0	940	796	1	796	319	319	1877	1	20	21	40

Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO: Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
612	HWHGP71	203858 03/18/99	pCMVSPORT 3.0	622	1021	1	1021	389	389	1559	1	51	52	211
612	HWHGP71	203858 03/18/99	pCMVSPORT 3.0	941	1037	1	1037	394	394	1878	1	18	19	77
613	HWHGGQ49	209641 02/25/98	pCMVSPORT 3.0	623	985	1	985	511	511	1560	1	17	18	90
613	HWHGGQ49	209641 02/25/98	pCMVSPORT 3.0	942	1410	33	1410	306	306	1879	1	22	23	150
614	HWHGU54	209782 04/20/98	pCMVSPORT 3.0	624	1445	1	1445	145	145	1561	1	19	20	414
615	HWHGGZ51	PTA-499 08/11/99	pCMVSPORT 3.0	625	1699	1	1699	33	33	1562	1	30	31	346
616	HWHHL34	203181 09/09/98	pCMVSPORT 3.0	626	1529	95	1529	131	131	1563	1	30	31	188
616	HWHHL34	203181 09/09/98	pCMVSPORT 3.0	943	1796	1	1796	209	209	1880	1	31	32	102
616	HWHHL34	203181 09/09/98	pCMVSPORT 3.0	944	2136	1	2136	101	101	1881	1	30	31	188
617	HWLEV32	PTA-884 10/28/99	pSPORT1	627	1218	1	1218	39	39	1564	1	18	19	45
617	HWLEV32	PTA-884 10/28/99	pSPORT1	945	1203	1	1203	29	29	1882	1	18	19	45
617	HWLEV32	PTA-884 10/28/99	pSPORT1	946	1144	528	596		3	1883	1	1	2	136
617	HWLEV32	PTA-884 10/28/99	pSPORT1	947	1120	791	851		1	1884	1	1	2	141



Gene No.	cDNA Clone ID	ATCC Deposit No:Z and Date	Vector	NT SEQ ID NO: X	Total NT Seq.	5' NT of Clone Seq.	3' NT of Clone Seq.	5' NT of Start Codon	5' NT of First AA of Signal Pep	AA SEQ ID NO:Y	First AA of Sig Pep	Last AA of Sig Pep	First AA of Secreted Portion	Last AA of ORF
618	HWLIH65	203081 07/30/98	pSport1	628	831	1	831	129	129	1565	1	18	19	165
619	HWTBK81	209138 07/03/97	Uni-ZAP XR	629	637	78	635	139	139	1566	1	23	24	155
620	HYAAJ71	203517 12/10/98	pCMVSPORT 3.0	630	3337	1	3337	190	190	1567	1	31	32	62

**Table 1B (Comprised of Tables 1B.1 and 1B.2)**

The first column in Table 1B.1 and Table 1B.2 provides the gene number in the application corresponding to the clone identifier. The second column in Table 1B.1 and Table 1B.2 provides a unique "Clone ID:" for the cDNA clone related to each contig sequence disclosed in Table 1B.1 and Table 1B.2. This clone ID references the cDNA clone which contains at least the 5' most sequence of the assembled contig and at least a portion of SEQ ID NO:X as determined by directly sequencing the referenced clone. The referenced clone may have more sequence than described in the sequence listing or the clone may have less. In the vast majority of cases, however, the clone is believed to encode a full-length polypeptide. In the case where a clone is not full-length, a full-length cDNA can be obtained by methods described elsewhere herein. The third column in Table 1B.1 and Table 1B.2 provides a unique "Contig ID" identification for each contig sequence. The fourth column in Table 1B.1 and Table 1B.2 provides the "SEQ ID NO:" identifier for each of the contig polynucleotide sequences disclosed in Table 1B.

**Table 1B.1**

The fifth column in Table 1B.1, "ORF (From-To)", provides the location (i.e., nucleotide position numbers) within the polynucleotide sequence "SEQ ID NO:X" that delineate the preferred open reading frame (ORF) shown in the sequence listing and referenced in Table 1B.1, column 6, as SEQ ID NO:Y. Where the nucleotide position number "To" is lower than the nucleotide position number "From", the preferred ORF is the reverse complement of the referenced polynucleotide sequence. The sixth column in Table 1B.1 provides the corresponding SEQ ID NO:Y for the polypeptide sequence encoded by the preferred ORF delineated in column 5. In one embodiment, the invention provides an amino acid sequence comprising, or alternatively consisting of, a polypeptide encoded by the portion of SEQ ID NO:X delineated by "ORF (From-To)". Also provided are polynucleotides encoding such amino acid sequences and the complementary strand thereto. Column 7 in Table 1B.1 lists residues comprising epitopes contained in the polypeptides encoded by the preferred ORF (SEQ ID NO:Y), as predicted using the algorithm of Jameson and Wolf, (1988) Comp. Appl. Biosci. 4:181-186. The Jameson-Wolf antigenic analysis was performed using the computer program PROTEAN (Version 3.11 for the Power MacIntosh, DNASTAR, Inc., 1228 South Park Street Madison, WI). In specific embodiments, polypeptides of the invention comprise, or alternatively consist of, at least one, two, three, four, five or more of the predicted epitopes as described in Table 1B. It will be appreciated that depending on the analytical criteria used to predict antigenic determinants, the exact address of the determinant may vary slightly.

Column 8 in Table 1B.1 provides a chromosomal map location for certain polynucleotides of the invention. Chromosomal location was determined by finding exact matches to

EST and cDNA sequences contained in the NCBI (National Center for Biotechnology Information) UniGene database. Each sequence in the UniGene database is assigned to a "cluster"; all of the ESTs, cDNAs, and STSs in a cluster are believed to be derived from a single gene. Chromosomal mapping data is often available for one or more sequence(s) in a UniGene cluster; this data (if consistent) is then applied to the cluster as a whole. Thus, it is possible to infer the chromosomal location of a new polynucleotide sequence by determining its identity with a mapped UniGene cluster.

A modified version of the computer program BLASTN (Altshul, et al., J. Mol. Biol. 215:403-410 (1990), and Gish, and States, Nat. Genet. 3:266-272) (1993) was used to search the UniGene database for EST or cDNA sequences that contain exact or near-exact matches to a polynucleotide sequence of the invention (the 'Query'). A sequence from the UniGene database (the 'Subject') was said to be an exact match if it contained a segment of 50 nucleotides in length such that 48 of those nucleotides were in the same order as found in the Query sequence. If all of the matches that met this criteria were in the same UniGene cluster, and mapping data was available for this cluster, it is indicated in Table 1B under the heading "Cytologic Band". Where a cluster had been further localized to a distinct cytologic band, that band is disclosed; where no banding information was available, but the gene had been localized to a single chromosome, the chromosome is disclosed.

Once a presumptive chromosomal location was determined for a polynucleotide of the invention, an associated disease locus was identified by comparison with a database of diseases which have been experimentally associated with genetic loci. The database used was the Morbid Map, derived from OMIM™ and National Center for Biotechnology Information, National Library of Medicine (Bethesda, MD) 2000;. If the putative chromosomal location of a polynucleotide of the invention (Query sequence) was associated with a disease in the Morbid Map database, an OMIM reference identification number was noted in column 9, Table 1B.1, labelled "OMIM Disease Reference(s). Table 5 is a key to the OMIM reference identification numbers (column 1), and provides a description of the associated disease in Column 2.

#### **Table 1B.2**

Column 5, in Table 1B.2, provides an expression profile and library code:count for each of the contig sequences (SEQ ID NO:X) disclosed in Table 1B, which can routinely be combined with the information provided in Table 4 and used to determine the tissues, cells, and/or cell line libraries which predominantly express the polynucleotides of the invention. The first number in Table 1B.2, column 5 (preceding the colon), represents the tissue/cell source identifier code corresponding to the code and description provided in Table 4. The second number in column 5 (following the colon) represents the number of times a sequence corresponding to the reference polynucleotide sequence was identified in the corresponding tissue/cell source. Those tissue/cell source identifier codes in

which the first two letters are "AR" designate information generated using DNA array technology. Utilizing this technology, cDNAs were amplified by PCR and then transferred, in duplicate, onto the array. Gene expression was assayed through hybridization of first strand cDNA probes to the DNA array. cDNA probes were generated from total RNA extracted from a variety of different tissues and cell lines. Probe synthesis was performed in the presence of  $^{33}\text{P}$  dCTP, using oligo (dT) to prime reverse transcription. After hybridization, high stringency washing conditions were employed to remove non-specific hybrids from the array. The remaining signal, emanating from each gene target, was measured using a Phosphorimager. Gene expression was reported as Phosphor Stimulating Luminescence (PSL) which reflects the level of phosphor signal generated from the probe hybridized to each of the gene targets represented on the array. A local background signal subtraction was performed before the total signal generated from each array was used to normalize gene expression between the different hybridizations. The value presented after "[array code]:" represents the mean of the duplicate values, following background subtraction and probe normalization. One of skill in the art could routinely use this information to identify normal and/or diseased tissue(s) which show a predominant expression pattern of the corresponding polynucleotide of the invention or to identify polynucleotides which show predominant and/or specific tissue and/or cell expression.

Table 1B.1

Gene No:	cDNA Clone ID	Contig ID:	SEQ ID NO:	ORF (From-To)	AA SEQ ID	Predicted Epitopes	Cytologic Band	OMIM Disease Reference(s):
1	H2CBG48	745365	11	125 - 262	948		6q14	136550, 203310, 269920, 602772
2	H2MAC30	544957	12	157 - 375	949	Pro-54 to Gly-67.		
3	H6EAB28	1352227	13	115 - 414	950	Ser-39 to Gly-46, Leu-49 to Ala-62, Lys-79 to Ala-93, Gly-95 to Thr-100.	7p22	600259, 600259
	H6EAB28	589947	631	116 - 346	1568	Ala-29 to Thr-37, Pro-39 to Leu-63.		
4	H6EDF66	520498	14	146 - 538	951			
5	HABAG37	637942	15	97 - 285	952	Thr-24 to Gly-42, Glu-53 to Gly-58.	19p13.3	108725, 120700, 133171, 136836, 145981, 147141, 164953, 188070, 600957, 601238, 601846, 602216, 602477
6	HACBD91	637482	16	117 - 266	953		3q13.33	600882
7	HACCI17	891114	17	461 - 1114	954	Ser-201 to Tyr-217.	22q11.21	123620, 151410, 600850
	HACCI17	731877	632	135 - 353	1569			
8	HADAO89	570689	18	244 - 378	955	Arg-28 to Asn-33.		
9	HAGA185	381942	19	166 - 255	956	Ser-24 to Trp-30.	9q31-q32	109400, 132800, 132800, 154400, 186855, 223900, 253800, 253800, 278700, 602088
10	HAGAM64	626997	20	57 - 191	957	Arg-30 to Tyr-39.		
11	HAGAN21	1026956	21	34 - 309	958	Pro-56 to Leu-62, Pro-86 to Asp-91.	18,4,9	
	HAGAN21	864914	633	335 - 610	1570			
	HAGAN21	902027	634	452 - 466	1571			
	HAGAN21	902026	635	146 - 187	1572			
	HAGAN21	902025	636	321 - 341	1573			
12	HAGBZ81	456414	22	65 - 214	959	Ile-40 to Lys-45.	8q12.1	
13	HAGDG59	534165	23	124 - 1026	960	Lys-29 to Val-34, Cys-94 to Asp-99.	4	

							Ser-102 to Val-107, Gln-133 to Lys-139.			
14	HAGDI35	597444	24	318 - 596	961		Ser-36 to Gly-41, Pro-43 to Ser-49.	4p16.3	134934, 134934, 134934, 134934, 143100, 180072, 180072, 194190, 252800, 252800, 600965	
15	HAGFG51	823509	25	163 - 294	962		Cys-36 to Gly-43.			
16	HAGFI62	704425	26	429 - 704	963		Gly-49 to Ser-54, Lys-61 to Arg-68.			
17	HAGFY16	778820	27	251 - 844	964			5q31.3	131400, 159000, 180071, 181460, 272750, 600807, 601596, 602089	
	HAGFY16	381964	637	128 - 262	1574					
18	HAHDB16	635412	28	93 - 245	965					
19	HAHDR32	635357	29	435 - 980	966		Met-1 to Ser-7, Asp-41 to Met-48, Pro-61 to Ser-67, Pro-121 to Trp-130, His-161 to Lys-181.	3p14.3- p14.1	150250, 156845, 156845, 164500, 277730, 600971, 601226	
20	HAIBO71	490848	30	325 - 525	967					
21	HAIBP89	727543	31	311 - 1261	968		Pro-70 to Arg-77, Tyr-102 to Thr-107.	5q31.3	131400, 159000, 180071, 181460, 272750, 600807, 601596, 602089	
	HAIBP89	371337	638	1 - 54	1575					
22	HAICP19	422672	32	128 - 1468	969		Asn-27 to Leu-47, Gln-81 to Lys-88, Asp-93 to Lys-102, Asn-107 to Leu-116, Met-129 to Glu-141, Glu-150 to Asp-157, Lys-176 to Glu-185, Glu-333 to Tyr-349, Cys-393 to Leu-403, Gln-423 to Gly-429.	5q31	121050, 131400, 138040, 153455, 159000, 179095, 181460, 192974, 192974, 600807, 601596, 601692, 601692, 601692, 601692, 602089, 602121, 602460	
23	HAIFL18	676933	33	274 - 693	970		Glu-28 to Gly-45, Ser-63 to Gly-69.			

								Gln-96 to Trp-104, Gly-112 to Pro-117, Arg-121 to Pro-128.			
24	HAF57	823516	34	43 - 324	971			Cys-25 to Ile-31, Cys-85 to Asn-91.			
25	HABR69	638516	35	262 - 423	972						
26	HABZ75	618530	36	49 - 1872	973			Gly-19 to Ser-27, Gln-39 to Gly-45, Gln-48 to Ala-55, Ala-75 to Thr-80, Thr-198 to Gly-211.	10q23.33	157640, 174900, 236730, 600512	
27	HAFK58	647105	37	279 - 518	974			Met-1 to Ser-6.			
28	HAMGG68	731859	38	312 - 479	975						
29	HANGG89	845690	39	520 - 675	976						
	HANGG89	852533	639	125 - 418	1576			Glu-61 to Gln-66, Ala-93 to Glu-98.			
	HANGG89	844216	640	70 - 1245	1577			Pro-31 to Thr-48, Arg-62 to Gly-70, Ala-74 to Glu-87, Lys-123 to Asp-129, Pro-162 to Gly-167, Glu-170 to Gly-189, Arg-220 to Asn-228.			
	HANGG89	692291	641	78 - 1379	1578			Pro-28 to Thr-45, Arg-59 to Gly-67, Ala-71 to Glu-84, Lys-120 to Asp-126, Pro-159 to Gly-164, Glu-167 to Gly-186, Arg-217 to Asn-225, Glu-245 to Ala-255, Gly-282 to Gly-297.			

									Pro-312 to Gly-324, Thr-356 to Lys-364, Gly-366 to Thr-372, Lys-377 to Ala-383, Gly-397 to Thr-407, Thr-419 to Gly-433.			
30	HAPBS03	656755	40	252 - 377	977					1p36.11	120550, 120570, 120575, 130500, 133200, 600975	
31	HAPNY86	587261	41	100 - 489	978				Pro-27 to Leu-41.			
32	HAPNY94	699770	42	94 - 246	979				Ser-30 to Trp-37.	6p25	134570, 601090, 602028	
33	HAPPW30	1352278	43	59 - 850	980				Glu-42 to Pro-53, Ser-67 to Tyr-79, Phe-137 to Leu-143, Ser-180 to Arg-186, Trp-188 to Gly-195, Pro-210 to Arg-216, Thr-222 to Asp-243.			
	HAPPW30	684272	642	54 - 329	1579				Glu-42 to Pro-53, Ser-67 to Thr-73, Ala-84 to Leu-90.			
34	HAPQT22	587601	44	132 - 350	981							
35	HAPUC89	834358	45	385 - 807	982							
36	HASAV70	1300782	46	94 - 426	983				Lys-26 to Tyr-33, Arg-44 to Ile-49, Ser-53 to Lys-71, Lys-86 to Pro-91.	1q23.1- q24.1	107300, 131210, 136132, 145001, 173610, 601518, 601652	
	HASAV70	381953	643	103 - 432	1580				Lys-26 to Tyr-33, Arg-44 to Ile-49, Ser-53 to Lys-71, Lys-86 to Pro-91.			
37	HASCG84	603947	47	216 - 377	984					X		
38	HATAC53	1352276	48	97 - 840	985				Lys-25 to Ser-36, Ser-53 to Glu-60.			



							Thr-70 to Arg-75, Arg-111 to Thr-119, Lys-204 to Leu-248.			
	HATAC33	667830	644	99 - 668	1581		Lys-25 to Ser-36, Ser-53 to Glu-60, Thr-70 to Arg-75, Arg-111 to Thr-119, Glu-161 to Leu-189.			
39	HATBR65	635514	49	252 - 446	986		Ile-25 to Trp-30.			
40	HATCB92	603948	50	247 - 417	987		Arg-49 to Gln-56.			
41	HATCP77	748244	51	37 - 585	988		Trp-25 to Gln-30, Pro-50 to Gln-57, Pro-93 to Glu-101, Arg-114 to Cys-121, Ser-123 to Gln-129, Ile-177 to Arg-182.	3q26.2- q27.1	138160, 138160, 177400	
42	HATEE46	565618	52	241 - 402	989					
43	HBAFJ33	625916	53	60 - 392	990		Gln-66 to Cys-71, Thr-76 to Gly-81, His-87 to Asp-92.	14q32	123270, 245200, 251600, 270100, 276900	
44	HBAFV19	843036	54	6 - 779	991		Pro-12 to Phe-18, Ser-139 to Pro-146, Asp-162 to Arg-173, Thr-188 to Glu-204, Lys-245 to Gly-258.			
45	HBAMB34	553553	55	87 - 233	992					
46	HBCPB32	1352403	56	88 - 693	993			4		
	HBCPB32	1045580	645	89 - 679	1582					
47	HBCQL32	1134954	57	26 - 268	994			17		
	HBCQL32	1027748	646	760 - 1002	1583					
48	HBGNU56	1352412	58	125 - 679	995		Thr-19 to Ala-33, Leu-54 to Asp-82,	19q12- q13.1	164731, 172400, 172400, 180901, 180901, 221770, 248600, 600918, 602716	

									Pro-89 to Ala-97, Pro-100 to Lys-125, Ser-127 to Phe-135, Ser-180 to Ser-185.			
	HBGNU56	1094642	647	79 - 612	1584				Thr-19 to Ala-33, Leu-54 to Asp-82, Pro-89 to Ala-97, Pro-100 to Lys-125, Ser-127 to Phe-135, Gly-164 to Leu-169, Cys-173 to Arg-178.			
	HBGNU56	1050255	648	2 - 658	1585				Arg-16 to Ser-31.			
49	HBHAD12	420036	59	176 - 247	996							
50	HBHMA23	848016	60	71 - 661	997				Lys-39 to Asn-48, Arg-63 to Gly-68, Pro-101 to Gln-106.	20q11.21		
	HBHMA23	699815	649	70 - 300	1586				Lys-39 to Asn-48.			
51	HBIMB51	963208	61	98 - 535	998				His-24 to Ala-29, Glu-42 to Glu-49, Arg-63 to Thr-80, Gln-100 to Lys-119, Lys-141 to Gln-146.			
	HBIMB51	672711	650	93 - 485	1587				His-24 to Ala-29, Glu-42 to Glu-49.			
52	HBINS58	1352386	62	57 - 578	999				Gly-32 to Gly-37, Glu-78 to His-87, Tyr-102 to Ala-107, Pro-115 to Val-122, Lys-164 to Tyr-170.	1		
	HBINS58	961712	651	71 - 592	1588				Gly-32 to Gly-37, Glu-78 to His-87, Tyr-102 to Ala-107.			

						Pro-115 to Val-122, Lys-164 to Gln-171.		
	HBINS58	892924	652	100 - 732	1589	Gly-32 to Gly-37, Glu-78 to His-87, Tyr-102 to Ala-107, Pro-115 to Val-122.		
53	HBJFU48	460392	63	20 - 142	1000			
54	HBJIY92	778065	64	548 - 670	1001	Asp-30 to Val-40.	11p15	108985, 186921, 602092
55	HBJLC01	638410	65	87 - 227	1002			
56	HBJLF01	732111	66	217 - 951	1003	Tyr-123 to Tyr-131, Cys-134 to Ser-145, Tyr-234 to Tyr-244.		
57	HBJLH40	828130	67	74 - 298	1004	Ile-69 to Pro-74.		
58	HBJNC59	1125802	68	66 - 803	1005	Pro-29 to Gly-46, Lys-48 to Gly-55, Lys-67 to Gly-80, Lys-100 to Pro-115, Arg-121 to Gly-127, Asn-139 to Gly-149, Ser-179 to Arg-185, Asp-191 to Gly-196, Lys-219 to Gly-224.	1p36.3- p34.1	120550, 120570, 120575, 121800, 130500, 133200, 138140, 153454, 171760, 171760, 178300, 236250, 255800, 256700
	HBJNC59	899397	653	66 - 365	1590	Pro-29 to Gly-46, Lys-48 to Gly-55, Lys-67 to Gly-80, Gly-89 to Asn-99.		
	HBJNC59	902207	654	64 - 801	1591	Pro-29 to Gly-46, Lys-48 to Gly-55, Lys-67 to Gly-80, Lys-100 to Pro-115, Arg-121 to Gly-127, Asn-139 to Gly-149.		

								Ser-179 to Arg-185, Asp-191 to Gly-196, Lys-219 to Gly-224.			
59	HBMCI50	668268	69	156 - 407	1006			Arg-37 to Gly-42.	1		
60	HBNAW17	526797	70	77 - 262	1007						
61	HBOEG11	1300752	71	57 - 809	1008			Met-1 to Lys-6, Cys-30 to Cys-39, Glu-95 to Cys-100, Val-102 to Phe-113, Cys-121 to Gly-127, Val-216 to Arg-224, Pro-236 to Asn-247.	20q12- q13.1	256540, 600281, 600281	
	HBOEG11	1121709	655	53 - 805	1592			Met-1 to Lys-6, Cys-30 to Cys-39, Glu-95 to Cys-100, Val-102 to Phe-113, Cys-121 to Gly-127, Val-216 to Arg-224, Pro-236 to Asn-247.			
	HBOEG11	1049830	656	47 - 799	1593			Met-1 to Lys-6, Cys-30 to Cys-39, Glu-95 to Cys-100, Val-102 to Phe-113, Cys-121 to Gly-127, Val-216 to Arg-224, Pro-236 to Asn-247.			
62	HBOEG69	793786	72	302 - 466	1009						
63	HBXFL29	842802	73	560 - 733	1010			Arg-36 to Pro-43.	17q22-q23	106180, 109270, 109270, 109270, 109270, 120150, 120150, 120150, 138700, 139250, 148065, 148080, 150200, 154275, 171190, 176960, 185800, 221820, 249000, 253250, 600525, 600852, 601844	
64	HCACU58	625923	74	137 - 388	1011						

65	HCACV51	1306706	75	168 - 413	1012	Val-34 to Lys-46, Glu-67 to Trp-72.		
	HCACV51	598022	657	173 - 1018	1594	Val-34 to Leu-48, Val-51 to Gly-67, Lys-74 to Asp-81, Thr-93 to Glu-98, Ser-138 to His-149, Ala-186 to Gln-201, Pro-257 to Arg-271.		
66	HCDAF84	544988	76	168 - 338	1013			
67	HCEIQ89	520329	77	74 - 340	1014	Cys-56 to Ser-63, Met-67 to Leu-73.		
68	HCE2F54	634016	78	166 - 1125	1015	His-44 to Pro-50, Glu-90 to Glu-96, Gln-111 to Glu-117, Ser-143 to Gly-151, Ala-154 to Leu-166, Pro-199 to Ala-216, Gly-264 to Asp-272.	16q22.1	103850, 114835, 116800, 140100, 140100, 192090, 192090, 192090, 245900, 276600, 600223
69	HCEFB80	1143407	79	12 - 281	1016	Met-1 to Ala-8, Ser-51 to Leu-62, Pro-70 to Lys-78.	22q13.33	
	HCEFB80	1046853	658	5 - 274	1595	Met-1 to Ala-8.		
70	HCEGR33	425212	80	243 - 338	1017			
71	HCEMP62	684780	81	352 - 915	1018		2p23.3	176830, 176830, 182601, 229800, 602134
	HCEMP62	879178	659	19 - 1023	1596	His-18 to Arg-26, Tyr-53 to Ser-58, Glu-72 to Leu-82, Glu-95 to Asp-106, Asp-146 to Ser-152, Ser-180 to Gly-185.		
72	HCENK38	658737	82	10 - 168	1019	Tyr-30 to Ser-40.		

73	HCEWE17	941941	83	117 - 437	1020	Gly-36 to Thr-41, Pro-99 to Cys-106.	1q21.3	104770, 107670, 110700, 145001, 146760, 146790, 191315, 601412, 601652, 601863, 602491
	HCEWE17	893535	660	500 - 583	1597			
	HCEWE17	460407	661	156 - 317	1598	His-12 to Lys-18, Ala-20 to Ala-26, Arg-30 to Trp-52.		
74	HCEWE20	543370	84	166 - 321	1021	Ser-17 to Gln-22.		
75	HCFCU88	553587	85	217 - 507	1022	Glu-32 to Tyr-37, Gln-68 to Ser-76.		
76	HCFMV71	526599	86	31 - 207	1023	Arg-35 to Gly-44.		
77	HCFFN01	430297	87	254 - 385	1024			
78	HCFOM18	553582	88	28 - 219	1025			
79	HCHNF25	1352270	89	1130 - 1636	1026	Val-34 to Leu-39, Ser-64 to Cys-74, Ser-86 to Lys-94, Gln-133 to Asn-143, Pro-160 to Asp-169.		
	HCHNF25	658672	662	180 - 623	1599	Val-34 to Leu-39, Ser-64 to Cys-74, Ser-86 to Ser-95, Arg-128 to Ala-136.		
80	HCMSEQ56	740781	90	148 - 414	1027	Pro-61 to Asp-68.	5q31	121050, 131400, 138040, 153455, 159000, 179095, 181460, 192974, 192974, 600807, 601596, 601692, 601692, 601692, 601692, 602089, 602121, 602460
81	HCMST14	562010	91	136 - 279	1028	Pro-25 to Ser-30, Thr-36 to Ser-47.		
82	HCMTB45	862367	92	215 - 583	1029	Ser-61 to Trp-67.		
	HCMTB45	562034	663	209 - 421	1600			
83	HCNSB61	526413	93	218 - 349	1030	Pro-26 to Asn-32.		
84	HCNSD93	630649	94	139 - 279	1031			
85	HCNSM70	637547	95	107 - 751	1032	Met-1 to Ser-6.	11q24	600359, 602574, 602574
	HCNSM70	589445	664	161 - 436	1601	Met-1 to Ser-6.		

86	HCOOS80	1134974	96	36 - 512	1033	Pro-39 to Leu-44, Gln-80 to Pro-93, Pro-153 to Pro-158.	17p13.2	
	HCOOS80	1045182	665	40 - 516	1602	Pro-39 to Leu-44, Gln-80 to Pro-93, Pro-153 to Pro-158.		
	HCOOS80	1045183	666	1 - 318	1603	Pro-12 to His-25.		
87	HCUBS50	499240	97	88 - 204	1034			
88	HCUCK44	720291	98	593 - 772	1035		19q13.1	164731, 172400, 172400, 180901, 180901, 221770, 248600, 600918, 602716
89	HCUEO60	499242	99	102 - 296	1036			
90	HCUHK65	651313	100	80 - 319	1037	Met-24 to Gly-29, Ala-57 to Thr-63.		
	HCUHK65	880178	667	770 - 2893	1604	Glu-124 to Leu-131, Asp-266 to Pro-271, Asn-273 to Phe-280, Glu-315 to Arg-321, Pro-400 to Val-407, Ala-446 to Pro-452, Thr-487 to Gly-492, Phe-517 to Gly-523, Tyr-599 to Lys-605, Thr-611 to Thr-626, Met-653 to Gly-658, Ala-686 to Thr-692.		
91	HCUIM65	550208	101	557 - 700	1038			
92	HCWEB58	1352416	102	148 - 1176	1039	Pro-54 to Phe-63, Gly-115 to Gln-121, Gln-136 to Ala-141, Gln-164 to Leu-178, Glu-194 to Trp-203, Glu-215 to Arg-222.		

	HCWEB58	1115089	668	247 - 978	1605	Glu-296 to Gly-304. Pro-54 to Phe-63, Gly-115 to Gln-121, Gln-136 to Ala-141, Gln-164 to Leu-178, Glu-194 to Trp-203, Glu-215 to Asp-223.		
	HCWEB58	889268	669	155 - 886	1606			
93	HCWGU37	1042325	103	194 - 226	1040		13,15,16,1 9,2,3,4,5	
	HCWGU37	901913	670	187 - 219	1607			
94	HCWKC15	553621	104	37 - 159	1041	Lys-28 to Thr-34.		
95	HCWLD74	628256	105	138 - 335	1042			
96	HCWUM50	639037	106	270 - 407	1043			
97	HCYBG92	598019	107	118 - 942	1044	Lys-21 to Gln-32, Asp-117 to Glu-124, Tyr-179 to Gly-184, Asn-211 to Gly-217, Leu-239 to Lys-264.		
98	HDABR72	1301517	108	33 - 473	1045	Leu-30 to Gly-38, Arg-67 to Val-72, Val-76 to Ala-89, Pro-118 to Arg-123, Gly-129 to Ala-136, Leu-138 to Arg-146.		
	HDABR72	748225	671	28 - 468	1608	Leu-30 to Gly-38, Arg-67 to Val-72, Val-76 to Ala-89, Pro-118 to Arg-123, Gly-129 to Ala-136, Leu-138 to Arg-146.		
99	HDHEB60	499233	109	568 - 894	1046	Asp-48 to Ser-54.	11p11.2	133701, 168500, 171650, 176930, 176930, 600623, 600811,



									600958			
100	HDHIA94	765171	110	154 - 657	1047							
	HDHIA94	637576	672	163 - 309	1609							
101	HDHMA72	547772	111	287 - 1234	1048					7q36		142335, 152427, 163729, 176450, 190605, 600510, 600725
												Glu-67 to Asn-74, Glu-88 to Asn-93, Lys-95 to Ser-105, Arg-152 to Ala-164, Ala-204 to Arg-210, Phe-254 to Thr-262, Pro-295 to His-311.
102	HDLAC10	692299	112	132 - 377	1049					11p15.3		168450, 168450, 257200, 257200
103	HDLAO28	890457	113	259 - 489	1050					2q21.3		256030
104	HDPBI32	1352360	114	37 - 984	1051					12q13		107777, 123940, 139350, 139350, 148040, 148041, 148043, 148070, 231550, 600194, 600231, 600536, 600808, 600956, 601284, 601769, 601769, 601928, 602116, 602153
	HDPBI32	862851	673	103 - 915	1610							
												Ala-12 to Glu-27, Pro-35 to Ser-43, Pro-70 to Gly-79, Ser-92 to Val-98, Pro-166 to Leu-175, Ser-234 to Thr-246.
	HDPBI32	590733	674	51 - 464	1611							
105	HDPBQ71	1160316	115	93 - 1928	1052							
												Leu-56 to Thr-62, Gln-80 to Pro-87, Gly-106 to Gln-113, Pro-122 to Lys-127, Gln-138 to Asn-146, Cys-280 to Lys-287, Asp-306 to Gly-311, Asp-321 to Thr-326, Gly-337 to Pro-345, Thr-354 to Gln-359,

								Asn-451 to Ile-457, Lys-526 to Glu-532, Gln-591 to Glu-603.			
	HDPBQ71	727200	675	24 - 1859	1612			Leu-56 to Thr-62, Gln-80 to Pro-87, Gly-106 to Gln-113, Pro-122 to Lys-127, Gln-138 to Asn-146.			
	HDPBQ71	886067	676	165 - 1535	1613			Leu-56 to Thr-62, Gln-80 to Pro-87, Gly-106 to Gln-113, Pro-122 to Lys-127, Gln-138 to Asn-146, Cys-280 to Lys-287, Asp-306 to Gly-311, Asp-321 to Thr-326, Gly-337 to Pro-345, Thr-354 to Gln-359, Asn-451 to Arg-456.			
106	HDPCJ91	740748	116	131 - 286	1053			Tyr-33 to Lys-38.			
107	HDPCO25	460682	117	182 - 343	1054			Pro-22 to His-33, Ser-42 to Trp-48.			
108	HDPCY37	837699	118	76 - 1809	1055			Pro-23 to His-34, Thr-64 to Trp-71.	12q13.3	181430, 232800, 600808, 601284, 601769, 602116	
	HDPCY37	604114	677	76 - 870	1614			Pro-23 to His-34, Thr-64 to Trp-71, Lys-245 to Ala-252.			
109	HDPFB02	898208	119	173 - 631	1056			Glu-72 to Gly-77, Arg-115 to Arg-125, His-138 to Pro-146.			
	HDPFB02	1056541	678	139 - 1086	1615			Met-1 to Gly-6, Glu-81 to Gly-86.			

							Glu-150 to Asp-159, Ser-166 to Glu-173, Ser-277 to Glu-291, Leu-302 to Gly-312.			
	HDPFB02	997408	679	218 - 1123	1616		Arg-17 to Glu-24, Glu-41 to Asp-46, Val-76 to Arg-83, Thr-104 to Gln-109.			
110	HDPFF39	588697	120	175 - 765	1057		Ser-128 to Thr-133, Thr-158 to Thr-166, Leu-168 to Gly-175, Ala-179 to Asp-196.	19q13.2- q13.3	107741, 113900, 122720, 122720, 126340, 126391, 130410, 134790, 138570, 160900, 164731, 173850, 207750, 248600, 258501, 600040, 602225, 602225	
111	HDPFP29	628254	121	293 - 451	1058					
112	HDPG149	785887	122	266 - 484	1059			15q		
113	HDPGP94	823355	123	256 - 480	1060					
114	HDPHI51	460679	124	245 - 367	1061		Gly-2 to Glu-7, Arg-27 to Gly-34.			
115	HDPJF37	704487	125	196 - 369	1062		Pro-27 to Gly-34.			
116	HDPNM88	972734	126	100 - 2913	1063		Met-1 to Ser-13, Ser-45 to Phe-51, Asn-103 to Lys-113, Phe-135 to Gly-140, Asp-165 to Pro-178, Ser-224 to Ala-229, Asn-283 to Arg-288, Asp-347 to Tyr-352, Thr-367 to Glu-372, Gly-420 to Thr-425, Glu-456 to Lys-462, Phe-466 to Asn-474, Glu-480 to Leu-485, Asp-673 to Asp-681.			

									Gln-684 to Gly-689, Leu-841 to Gly-874, Gly-890 to Pro-900, Ser-902 to Ser-911, Leu-918 to Asp-924, Ser-930 to Val-935.			
	HDPMM88	906121	680	141 - 467	1617	Ser-28 to Phe-34, Asn-86 to Tyr-93.						
	HDPMM88	902299	681	44 - 181	1618							
	HDPMM88	885059	682	419 - 439	1619							
	HDPMM88	874074	683	111 - 146	1620							
	HDPMM88	854246	684	167 - 334	1621							
	HDPMM88	854245	685	28 - 186	1622	Ser-26 to Thr-31.						
117	HDPNC61	637585	127	20 - 304	1064	Glu-35 to Lys-44, Cys-83 to Gly-88.						
118	HDPND46	637586	128	15 - 1469	1065	Ala-107 to Ser-112.						
119	HDPOE32	897276	129	118 - 573	1066	Ala-88 to Gln-98.			8p21.2- p21.1		138300, 240400, 602629	
120	HDP0H06	683371	130	252 - 980	1067	Met-1 to Ser-8.						
121	HDP0Z56	1352319	131	91 - 1791	1068	Gln-22 to Gln-44, Ala-90 to Gly-95, Lys-137 to Trp-146, Arg-171 to Asp-181, Glu-370 to Ser-380, Asp-447 to Gly-452, Gln-463 to Trp-469, Asn-505 to Ala-511, Asp-513 to His-520, Ala-542 to Val-551, Asn-559 to His-567.						
	HDP0Z56	815653	686	103 - 1800	1623	Gln-22 to Gln-44, Ala-90 to Gly-95.						

								Lys-137 to Trp-146, Arg-171 to Asp-181, Glu-370 to Ser-380, Asp-447 to Gly-452, Gln-463 to Trp-469, Asn-504 to Ala-510, Asp-512 to His-519, Ala-541 to Val-550, Asn-558 to His-566.				
	HDPOZ56	743479	687	59 - 1018	1624			Gln-22 to Gln-44, Ala-53 to Gly-58.				
122	HDPPSP54	744440	132	2356 - 2499	1069			Pro-29 to Lys-37.	1q21.2		104770, 107670, 110700, 145001, 146760, 146790, 191315, 601412, 601652, 601863, 602491	
	HDPPSP54	502472	688	179 - 343	1625							
123	HDPTD15	692917	133	223 - 825	1070			Arg-20 to Lys-44, Arg-59 to Arg-68, Trp-74 to Lys-86, Thr-91 to Val-102.				
124	HDPTK41	744824	134	39 - 1148	1071			Glu-102 to Asn-110, Arg-256 to Leu-266, Pro-316 to Trp-328, Pro-331 to Arg-336, Met-350 to Gly-358.	14q11.2		182600, 186880, 190195, 190195, 222700, 600243, 602279, 602279	
125	HDPUG50	684120	135	22 - 1602	1072			Glu-136 to Pro-141, Ala-221 to Ser-227, Asp-307 to Pro-312, Lys-355 to Gly-361, Phe-449 to Pro-454.	11pter- p15.5			
126	HDPUH26	866433	136	90 - 1739	1073			Ser-28 to Phe-33, Glu-35 to Pro-41, Lys-48 to Val-54, Pro-100 to Glu-105, Pro-107 to Glu-112.	2p11.2		178640, 216900	

							Leu-119 to Gln-125, Gly-335 to Leu-340, Ser-383 to Arg-396, Leu-417 to Lys-429, Asp-477 to Arg-482, Tyr-532 to Ser-540, Ile-542 to Asn-549.			
127	HDPVW68	812737	137	40 - 1440	1074		Gly-12 to Tyr-26, Val-52 to Asp-59, Gln-88 to Asp-93, Arg-124 to Asn-129, His-193 to Arg-198, Gln-207 to Thr-213, Gln-338 to Arg-346, Ser-378 to Ala-384, Ser-413 to Arg-420, Ser-428 to Glu-434, His-443 to Ser-451, Glu-454 to Ser-461.			
128	HDPVH60	796865	138	8 - 163	1075		Asp-57 to Glu-62, Thr-91 to Ala-96, Thr-114 to Ser-131, Gly-133 to Pro-160, Gln-356 to Arg-365, Pro-383 to His-391, Leu-401 to Trp-406, Pro-430 to Asp-436.	16q13	1114835, 132700, 172490, 600968	
129	HDPVW11	1036997	139	67 - 1434	1076		Asp-57 to Glu-62, Thr-91 to Ala-96, Thr-114 to Ser-131, Gly-133 to Pro-160, Gln-356 to Arg-365, Pro-383 to His-391, Leu-401 to Trp-406, Pro-430 to Asp-436.	1p33	120260, 138140, 178300, 246450	
	HDPVW11	896530	689	50 - 349	1626		Asp-57 to Gly-64.			
130	HDPWN93	992925	140	45 - 2453	1077		Pro-36 to Ser-52, Ala-63 to Pro-78, Ala-106 to Lys-115, Glu-134 to Glu-141,	17q21.33	109270, 109270, 109270, 109270, 120150, 120150, 120150, 148065, 148080, 154275, 171190, 185800, 221820, 249000, 253250, 600119, 600119, 600525, 601844	

							Val-155 to Asp-164, Phe-199 to Gly-204, Arg-218 to Leu-228, Glu-230 to Val-235, Val-247 to Pro-253, Arg-262 to Gly-276, Thr-303 to Gln-310, Arg-335 to Trp-342, Glu-399 to Ala-415, Ser-458 to Glu-466, Arg-508 to Asp-517, Glu-580 to Pro-585, Gln-620 to Trp-628, Lys-651 to Ala-657, Gly-677 to Met-682, Ala-712 to Leu-717, Gly-724 to Thr-731, Arg-770 to Gln-775.			
	HDPWN93	887914	690	35 - 679	1627		Pro-36 to Ser-52, Ala-63 to Pro-78, Ala-106 to Lys-115, Glu-134 to Glu-141, Val-155 to Asp-164.			
	HDPWN93	905983	691	27 - 158	1628					
131	HDPWU34	630354	141	117 - 1091	1078		Arg-23 to Gln-30, Asp-37 to Asp-50, Glu-230 to Met-235, Pro-271 to Arg-281, Arg-306 to Ser-316, Ser-318 to Gly-325.			
	HDPWU34	701979	692	111 - 245	1629		Arg-25 to Ser-35, Ser-37 to Gly-44.			
132	HDQHD03	1309175	142	274 - 1266	1079		Arg-26 to Lys-46,			

							Ala-70 to Lys-81, Gln-100 to Pro-105, Val-118 to Leu-123, Pro-166 to Pro-171, Gly-310 to Gly-331.			
	HDQHD03	834692	693	259 - 1257	1630		Arg-26 to Lys-46, Ala-70 to Lys-81, Phe-92 to Gly-98.			
133	HDTBD53	972757	143	288 - 1385	1080		Glu-91 to Arg-117, Lys-124 to Ser-136, Tyr-191 to Glu-200, Glu-265 to Lys-272.	3p25.1	193300, 193300, 227646	
	HDTBD53	906342	694	292 - 1389	1631		Glu-91 to Arg-117, Lys-124 to Ser-136.			
134	HDTBP04	1307742	144	70 - 729	1081		Glu-25 to Gly-31, Tyr-62 to Thr-68, Ala-189 to Glu-197, Ala-204 to Gln-219.			
	HDTBP04	543618	695	65 - 727	1632		Glu-25 to Gly-31, Tyr-62 to Thr-68.			
135	HDTDQ23	1306984	145	132 - 302	1082		Arg-24 to Arg-31, Ile-33 to Trp-41, Met-43 to His-52.			
	HDTDQ23	879009	696	148 - 471	1633		Arg-24 to Arg-31, Ile-33 to Gly-41.			
	HDTDQ23	751707	697	148 - 369	1634		Arg-24 to Arg-31.			
136	HDTEK44	1025421	146	691 - 942	1083		Arg-45 to Ser-54, Ser-78 to Ser-83.	5		
	HDTEK44	890972	698	175 - 378	1635		Leu-36 to Gly-41, Lys-51 to Arg-56, Arg-58 to Gly-66.			
	HDTEK44	904770	699	116 - 319	1636		Leu-36 to Gly-41.			



							Lys-51 to Arg-56, Arg-58 to Gly-66.			
	HDTEK44	902431	700	673 - 924	1637		Arg-45 to Ser-54, Ser-78 to Ser-83.			
137	HDTEN81	571078	147	114 - 371	1084		Ser-21 to Asp-35, Pro-47 to Pro-52, Pro-62 to Asn-67.			
138	HDTFE17	1043391	148	260 - 349	1085			X		
	HDTFE17	874477	701	251 - 340	1638					
	HDTFE17	892317	702	101 - 343	1639					
139	HDTGC73	635457	149	386 - 535	1086		Tyr-41 to Pro-46.			
140	HDTIT10	839264	150	58 - 948	1087		Lys-5 to Gly-15, Glu-188 to Pro-194, Asp-207 to Met-216, Cys-226 to Ser-231, Thr-256 to Thr-264.	17q25.3	170500, 170500, 170500, 232300, 252900	
	HDTIT10	834697	703	161 - 331	1640					
141	HDTMK50	1011485	151	154 - 309	1088		Ser-21 to Thr-26, Thr-36 to Cys-44.	1,19		
	HDTMK50	906320	704	164 - 319	1641					
	HDTMK50	857362	705	200 - 205	1642					
142	HE2DY70	722217	152	137 - 313	1089			10q23.2- q23.31	157640, 174900, 203300, 236730, 600512	
143	HE2EB74	513662	153	507 - 566	1090					
144	HE2EN04	545008	154	57 - 209	1091					
145	HE2FV03	396139	155	116 - 241	1092					
146	HE2NV57	740750	156	99 - 398	1093		Ala-84 to Gln-93.			
147	HE2PD49	638617	157	337 - 852	1094		Ala-67 to Glu-72, Thr-91 to Ile-100.	8		
148	HE2PY40	753229	158	147 - 398	1095					
149	HE6EU50	411998	159	237 - 341	1096		Arg-28 to Gly-34.			
150	HE8DS15	847060	160	91 - 309	1097			18		

151	HE8MH91	589450	161	63 - 413	1098	Thr-21 to Leu-26.	16q22.2	103850, 276600
152	HE8QV67	1050076	162	502 - 744	1099		9	
	HE8QV67	1050077	706	256 - 1500	1643	Gln-29 to Lys-35, Lys-48 to Gln-54, Arg-80 to Asp-90, Pro-166 to Arg-173, Glu-178 to Tyr-188, Glu-220 to Leu-228, Ile-246 to Pro-253, Arg-281 to Asp-288, Ser-305 to His-313, Asn-319 to Asp-328, Asp-361 to Phe-366, Arg-372 to Tyr-377, Gly-384 to Ser-402.		
153	HE9BK23	675382	163	39 - 968	1100	Arg-18 to Asp-27, Leu-29 to Arg-36, Ser-90 to Tyr-104, Val-108 to Lys-114.	1p31.1- p22.3	600309, 601414, 602094
154	HE9CP41	560625	164	132 - 257	1101	Ala-22 to Lys-36.		
155	HE9DG49	1299935	165	70 - 675	1102	Ala-118 to Phe-124, Arg-178 to Lys-201.		
	HE9DG49	658678	707	70 - 672	1644	Ala-118 to Phe-124, Arg-178 to Lys-201.		
	HE9DG49	382000	708	78 - 686	1645	Ala-118 to Phe-124, Thr-177 to Lys-203.		
156	HE9HY07	420063	166	35 - 160	1103	Pro-35 to Phe-41.		
157	HE9NN84	846309	167	380 - 538	1104	Asp-40 to Tyr-46.	10	
158	HE9OW20	1352337	168	129 - 1193	1105	Gln-44 to Gly-51, Gln-119 to Ala-124, Trp-209 to Ile-223.		
	HE9OW20	838598	709	136 - 1074	1646	Gln-44 to Gly-51.		

								Gln-119 to Ala-124, Trp-209 to Ile-223.			
	HE9OW20	834400	710	129 - 533	1647						
159	HE9RM63	886167	169	82 - 1146	1106			Glu-58 to Lys-63, Lys-78 to Tyr-86, Ala-127 to Cys-135, Ala-159 to Asn-180, Lys-205 to Glu-210, Lys-221 to Lys-226, Ser-240 to Asp-247, Thr-258 to Glu-267.			
160	HEAAR07	561524	170	48 - 176	1107						
161	HEBAE88	526417	171	160 - 288	1108			Ser-25 to Tyr-35.			
162	HEBBN36	486120	172	645 - 806	1109				17q21.31	109270, 109270, 109270, 109270, 109270, 120150, 120150, 120150, 148065, 148080, 154275, 171190, 185800, 221820, 249000, 253250, 600119, 600119, 600525, 601844	
163	HEBCM63	484643	173	246 - 452	1110			Cys-26 to Leu-32, Thr-49 to Ile-55, Glu-57 to Glu-63.			
164	HEBEJ18	701802	174	51 - 467	1111			Ser-39 to Asn-45, Asn-103 to Ser-109.			
165	HEEAG23	684254	175	57 - 197	1112						
166	HEEAI02	633657	176	387 - 761	1113			Pro-5 to Leu-10.	17p11.2	100710, 182290, 201475, 270200, 601097, 601097, 601097, 602666	
167	HEEAQ11	777843	177	213 - 656	1114			Phe-31 to Asp-38, Asn-59 to Tyr-65, Ser-76 to Glu-82, Thr-96 to Cys-108, Gln-111 to Asn-118.			
168	HEEBI05	1307611	178	146 - 625	1115			Gly-25 to Leu-30, Pro-40 to Ser-49, Pro-74 to Ser-91.			

								Asn-97 to Cys-104, Pro-115 to Phe-123, Ser-125 to Ser-132.			
	HEEBI05	1047700	711	226 - 705	1648			Gly-25 to Leu-30, Pro-40 to Ser-49, Pro-74 to Ser-91, Asn-97 to Cys-104, Pro-115 to Phe-123, Ser-125 to Ser-132.			
169	HEGAH43	532596	179	29 - 364	1116			Lys-35 to Glu-41, Ala-62 to Asn-67.	20p13	192340, 234200	
170	HEGAN94	885637	180	52 - 417	1117			Ile-40 to Cys-49, Arg-52 to Cys-57, Ser-94 to Trp-99, Gly-105 to Gly-111.			
	HEGAN94	769649	712	133 - 498	1649			Ile-40 to Cys-49, Arg-52 to Cys-57, Ser-94 to Trp-99, Gly-105 to Gly-111.			
171	HEGBS69	1093342	181	260 - 745	1118			Pro-46 to His-54, Pro-61 to Lys-73, Ser-104 to Gly-116, Thr-151 to His-156.	8q24.3	188450, 188450, 188450	
	HEGBS69	1048170	713	253 - 738	1650			Pro-46 to His-54, Pro-61 to Lys-73.			
172	HELK31	681138	182	209 - 1243	1119			Asp-102 to His-111, Asn-231 to Trp-244, Pro-255 to Gln-260, Glu-286 to Glu-291.	7p22.1		
	HELK31	340352	714	402 - 1274	1651			Asn-36 to Gln-41, Pro-49 to Ser-54.			
173	HELHD85	847372	183	41 - 280	1120						

174	HELHL48	696945	184	629 - 1501	1121	Cys-65 to Ser-70. Pro-44 to Lys-54, Cys-88 to His-95, Val-103 to Tyr-108, Gln-181 to Ser-190, Thr-192 to Ile-206, Glu-233 to Ser-245, Ser-252 to Ala-286.	9	
	HELHL48	610025	715	31 - 582	1652	Pro-44 to Lys-54, Cys-88 to His-95, Val-103 to Tyr-108, Leu-146 to Pro-157, Pro-176 to Gln-184.		
175	HEMAM41	741647	185	175 - 744	1122			
	HEMAM41	419870	716	175 - 450	1653			
176	HEPAA46	596830	186	18 - 389	1123	Tyr-21 to Asp-40, Ser-58 to Arg-64, Thr-71 to Ser-76, Ser-106 to Thr-112.		
177	HEPAB80	1307790	187	73 - 438	1124	Met-1 to Pro-6, Glu-58 to Cys-63, Glu-65 to Gly-72, Thr-74 to Asn-88, Tyr-104 to Trp-109.		
	HEPAB80	570048	717	67 - 435	1654	Met-1 to Pro-6, Glu-58 to Cys-63, Glu-65 to Gly-72, Thr-74 to Val-87.		
178	HEQAK71	598018	188	198 - 332	1125			
179	HERAR44	566811	189	60 - 197	1126			
180	HESAJ10	526013	190	405 - 620	1127			
181	HETAB45	609827	191	123 - 662	1128	Asp-35 to Ser-41,	2p23.3	176830, 176830, 182601, 229800, 602134

							Ser-69 to Gly-74.			
182	HETBR16	703243	192	161 - 355	1129		Le-23 to Ala-29.			
183	HETLM70	1177512	193	336 - 1025	1130			7p22.3		
	HETLM70	1046327	718	336 - 1025	1655					
	HETLM70	1046328	719	2 - 256	1656		Arg-16 to Gln-28.			
184	HFABG18	847073	194	53 - 316	1131		Glu-36 to Lys-55.			
185	HFAMB72	490697	195	559 - 741	1132		Gln-53 to Thr-60.			
186	HFAMH77	543486	196	240 - 425	1133		Ser-33 to Ser-44.			
187	HFCCQ50	579993	197	47 - 1105	1134		Ala-27 to Ser-38, Pro-43 to Asn-54, Thr-115 to Asp-121, Leu-225 to Val-232, Pro-247 to Gly-252, Arg-306 to Leu-311.	12q24	1113100, 124200, 147440, 158590, 160781, 163950, 163950, 251170, 276710, 600175, 601517	
188	HFCEW05	561560	198	34 - 663	1135		Asn-20 to Gly-27, Ser-49 to Trp-54, Leu-95 to Thr-101, Ala-140 to Pro-148.			
189	HFFAD59	520369	199	44 - 181	1136		Lys-13 to Asn-19, Asn-27 to Asn-35.	4q32-q34	189800, 208400, 231675	
190	HFFAL36	560639	200	68 - 238	1137					
191	HFGAD82	513669	201	1019 - 1135	1138			Xp22.2	300075, 300077, 301200, 302350, 302801, 305435, 306000, 306000, 307800, 308800, 309510, 311200, 312040, 312170, 312700, 313400	
192	HFIIZ70	1043350	202	24 - 167	1139			22		
	HFIIZ70	906708	720	74 - 217	1657					
193	HFKET18	889515	203	137 - 361	1140		Lys-60 to Ser-74.			
194	HFKFG02	634743	204	110 - 271	1141			11q13.1- q13.2	106100, 133780, 601650, 602078	
195	HFOXBI3	570699	205	36 - 200	1142		Trp-30 to Val-35, Lys-44 to Arg-49.			
196	HFPAC12	589522	206	140 - 406	1143		Thr-26 to Glu-33.	5q33.2	109690, 109690, 164770, 180071	

197	HFAO71	629193	207	414 - 809	1144	Pro-43 to Pro-50, Asn-65 to Gly-70.		
198	HFPCX09	1309793	208	185 - 1834	1145	Glu-25 to Lys-33, Glu-115 to Lys-120, Leu-162 to Cys-169, Glu-193 to Ile-203, Ala-219 to Pro-225, Glu-261 to Thr-271, Lys-331 to Trp-336, Lys-353 to Gly-358, Phe-412 to Asp-417, Gln-458 to Gly-467, Phe-533 to Gln-538.		
	HFPCX09	835390	721	249 - 1895	1658	Glu-25 to Lys-33, Glu-115 to Lys-120.		
	HFPCX09	598723	722	185 - 385	1659	Glu-25 to Asn-33.		
199	HFPCX36	526635	209	103 - 243	1146			
200	HFRAN90	520368	210	178 - 342	1147	Pro-49 to Gly-54.		
201	HFTCU19	735139	211	137 - 802	1148	His-2 to Lys-7, Ser-28 to Glu-35.		
	HFTCU19	456457	723	157 - 327	1660			
202	HFTDL56	695976	212	93 - 1652	1149	Met-1 to Pro-7, Gln-21 to Glu-27, Arg-35 to Asp-49, Asn-66 to Leu-72, Trp-82 to Glu-95, Pro-158 to Asn-163.		
203	HFTDZ36	545726	213	547 - 753	1150		16q24.3	155555, 155555, 227650, 253000, 602783
204	HFVAB79	1300736	214	133 - 717	1151	Ser-21 to Trp-34, Cys-68 to Gly-89, Cys-122 to Phe-133, Glu-188 to Leu-194.		

	HFVAB79	565076	724	139 - 723	1661	Ser-21 to Trp-34, Cys-68 to Gly-89, Cys-122 to Phe-133.		
205	HFVGE32	854545	215	154 - 393	1152		9	
	HFVGE32	698580	725	1 - 201	1662	His-49 to Ser-55.		
206	HFVIC62	799525	216	114 - 284	1153	Glu-44 to Asp-50.		
207	HFXAM76	601402	217	213 - 452	1154	Arg-30 to Gly-42, Asp-58 to Ser-63.		
208	HFXDJ75	626114	218	44 - 169	1155	Pro-31 to Pro-37.		
209	HFXDN63	553685	219	33 - 194	1156	Pro-21 to Ser-27.		
210	HFXGT26	745381	220	13 - 270	1157	His-56 to Gln-65, Leu-80 to Ile-85.		
211	HFXGV31	526253	221	100 - 294	1158	Gly-36 to Arg-43, Glu-50 to Gly-58.		
212	HFXHD88	589523	222	130 - 516	1159	Ala-122 to Gly-128.		
213	HFXHK73	609826	223	247 - 450	1160	His-55 to His-67.		
214	HFXKJ03	505207	224	179 - 304	1161	Met-1 to Arg-8.		
215	HFXKT05	658690	225	204 - 443	1162	Leu-16 to Ser-23, Ser-38 to Pro-43, Gly-53 to Leu-60.	1p34.1	120550, 120570, 120575, 121800, 130500, 133200, 138140, 171760, 171760, 178300, 255800
216	HFXKY27	634161	226	44 - 220	1163	Lys-23 to Lys-35, Met-46 to Tyr-52.		
217	HGBFO79	422794	227	273 - 422	1164		17p11.1	100710
218	HGBHE57	566836	228	14 - 220	1165	Ser-18 to Gly-26.	11q25	602782
219	HGBIB74	837220	229	14 - 1144	1166	Ser-67 to Glu-74, Arg-81 to Val-86, Tyr-147 to Asp-160.	20q11.21	
	HGBIB74	838602	726	28 - 540	1663	Ser-67 to Glu-74, Arg-81 to Val-86, Tyr-147 to Asp-160.		
	HGBIB74	899864	727	2 - 454	1664	Ser-3 to Gln-10, Val-14 to Gln-19.		



									Asp-32 to His-40, Gly-50 to His-55, Pro-76 to Ser-87.			
220	HGLAL82	520261	230	144 - 224	1167							
221	HHAAF20	838603	231	141 - 308	1168				Glu-31 to Pro-41.			
222	HHBCS39	1003028	232	104 - 604	1169				Ser-25 to Ala-30, Gln-36 to Thr-48, Arg-53 to Asn-67, Glu-82 to Phe-93, Ser-134 to Asn-142.	6		
	HHBCS39	883427	728	150 - 650	1665				Ser-25 to Ala-30, Gln-36 to Thr-48, Arg-53 to Asn-67, Glu-82 to Phe-93, Ser-134 to Asn-142.			
	HHBCS39	847543	729	1260 - 1340	1666							
223	HHEAA08	638231	233	88 - 324	1170				Asp-9 to Gln-17.			
	HHEAA08	623588	730	311 - 373	1667							
224	HHEMA59	823100	234	239 - 469	1171					13q13.3	600631	
225	HHEMA75	494099	235	569 - 823	1172				Lys-74 to Tyr-79.	7q33	180105, 222800	
226	HHEMM74	941955	236	94 - 318	1173				Ala-32 to Lys-55.			
	HHEMM74	906815	731	121 - 345	1668				Ala-32 to Lys-55.			
	HHEMM74	902458	732	706 - 807	1669				Pro-13 to His-21, Val-25 to Gly-33.			
	HHEMM74	895682	733	7 - 168	1670				Ser-17 to Cys-29, Arg-32 to Arg-38.			
227	HHENQ22	589958	237	115 - 291	1174				Pro-44 to Tyr-49.			
228	HHPEPD24	498227	238	156 - 236	1175				His-22 to Lys-27.			
229	HHPEPM33	877639	239	269 - 517	1176				Met-1 to Thr-13, Ser-27 to Phe-34, Arg-53 to Pro-59, Ser-77 to Ser-82.	2q36.1	120070, 120131, 138030, 259900	

230	HHEPT60	463027	240	245 - 355	1177		19p13.3	108725, 120700, 133171, 136836, 145981, 147141, 164953, 188070, 600957, 601238, 601846, 602216, 602477
231	HHEPU04	838217	241	259 - 750	1178	Arg-35 to Ala-41, Phe-55 to Arg-61, Lys-152 to His-163.	16p11.2	147781, 172471, 182381
	HHEPU04	897457	734	267 - 758	1671	Arg-35 to Ala-41, Phe-55 to Arg-61, Lys-152 to His-163.		
	HHEPU04	535730	735	45 - 320	1672	Arg-35 to Ala-41.		
232	HHFBY53	821330	242	172 - 366	1179	Arg-22 to Asn-32.	Xq13.1	304040, 305100, 305450, 309605, 312760, 314250, 314580
233	HHFEC49	905849	243	30 - 584	1180	Arg-16 to Arg-53, Lys-69 to Leu-79, Gln-81 to Thr-88, His-106 to Cys-114, Pro-139 to Gly-155.		
234	HHFFI48	634521	244	65 - 385	1181	Ser-19 to Ser-25, Pro-27 to Gly-33, Pro-40 to Asn-47, Pro-65 to Gln-70.		
235	HHFGR93	865581	245	132 - 1304	1182	Ser-61 to Trp-66, Lys-76 to Asp-82, Leu-116 to Tyr-124, Gln-131 to His-140, Gln-175 to Pro-181, Trp-187 to Ser-193, Arg-273 to Leu-278, Glu-280 to Lys-286, Pro-296 to Ile-304, Arg-320 to Gly-329, Pro-345 to Pro-357.		
	HHFGR93	691402	736	130 - 840	1673			
236	HHFHJ59	411332	246	192 - 530	1183	Pro-32 to Ser-39.		

237	HHFHR32	411470	247	58 - 762	1184	Met-1 to Leu-13, Gly-33 to Gly-46, Pro-48 to Gly-57, Pro-63 to Gly-68, Pro-89 to Asn-102, Ser-108 to Asn-113, Pro-118 to Pro-124, Pro-132 to Asn-141, Pro-151 to Asn-157, Ile-191 to Met-199, Ser-202 to Gly-215, Phe-222 to Pro-229.	5q14.1	
238	HHFOJ29	1127491	248	117 - 365	1185	Ser-34 to Arg-39.		
	HHFOJ29	1040264	737	132 - 416	1674			
	HHFOJ29	1042456	738	62 - 517	1675			
239	HHGBO91	520198	249	140 - 289	1186	Lys-39 to Glu-45.		
240	HHGCM76	662329	250	270 - 536	1187		17	
	HHGCM76	383547	739	270 - 302	1676			
241	HHGCQ54	544615	251	62 - 217	1188	Ser-16 to Val-33.		
242	HHGDF16	579890	252	253 - 411	1189			
243	HHGDW43	554613	253	107 - 241	1190	Ser-39 to Ser-44.		
244	HHPDY20	610321	254	174 - 374	1191	Gly-43 to Gly-48.		
245	HHPGO40	1299927	255	116 - 1000	1192			
	HHPGO40	753270	740	68 - 973	1677			
	HHPGO40	560969	741	74 - 745	1678			
246	HHPTJ65	490904	256	247 - 393	1193			
247	HHSDX28	553494	257	90 - 260	1194			
248	HILCF66	636025	258	331 - 465	1195	Gln-23 to Asn-28, Gly-38 to Ile-43.		
249	HJACG02	1307789	259	66 - 392	1196	Val-54 to Asp-59.	19p13.3	108725, 120700, 133171, 136836, 145981, 147141, 164953, 188070, 600957, 601238, 601846, 602216, 602477
	HJACG02	509948	742	47 - 373	1679	Val-54 to Asp-59.		

250	HJACG30	895505	260	291 - 425	1197	Thr-26 to Asn-39.	15,X	
	HJACG30	821341	743	50 - 439	1680	Pro-57 to Pro-64.		
	HJACG30	774300	744	350 - 715	1681	Lys-1 to Gly-8.		
251	HJBCU04	877643	261	96 - 626	1198	Met-1 to Cys-7, Gln-45 to Gly-61, Gln-77 to Thr-93, Arg-113 to Arg-118, Ser-135 to Glu-147, Gln-155 to Ala-161.	9p13-p12	230400, 250250
252	HJBCY35	719729	262	232 - 1215	1199	Glu-35 to His-41, Ser-62 to Ala-67, Pro-145 to Leu-155, Glu-157 to Ser-163, Arg-190 to Val-197, Asp-208 to Pro-215, Ser-247 to Pro-252.	7p22.3	
253	HJMBI18	545492	263	574 - 816	1200	Thr-26 to Met-33.	12q24.11	160781, 181405
254	HJMBM38	545752	264	387 - 725	1201		19q13.4	134790, 191044, 600040, 600138
255	HJMBT65	596795	265	341 - 469	1202	Thr-36 to Leu-41.	8p11.2- p11.1	136350, 152760, 180100, 182900, 277700, 600617
256	HJMBW30	491209	266	110 - 238	1203	Pro-30 to Ala-35.		
257	HJPAD75	651337	267	60 - 335	1204	Pro-42 to Cys-50, Leu-61 to Ala-66.		
258	HJPCP42	1040297	268	156 - 827	1205	Asp-77 to Leu-82, Gln-185 to Gln-192.		
	HJPCP42	844091	745	134 - 805	1682	Asp-77 to Leu-82.		
	HJPCP42	852573	746	468 - 494	1683			
	HJPCP42	824612	747	1 - 249	1684	Thr-21 to Thr-29, Gln-51 to Arg-57.		
259	HKAAE44	564406	269	113 - 523	1206			
260	HKAAH36	1352332	270	128 - 1006	1207	Asn-31 to Thr-41, Pro-43 to Asp-49.		

						Glu-56 to Arg-66, Ser-71 to Trp-80, Asn-160 to Val-169, Thr-192 to Val-198, Lys-215 to Asp-226, Asp-234 to Gly-246, Pro-265 to Gly-273.			
	HKAAH36	1352331	748	295 - 723	1685	Asn-31 to Thr-41, Pro-43 to Asp-49, Glu-56 to Arg-66, Ser-71 to Trp-80, Pro-131 to Gly-136.			
	HKAAH36	1352330	749	182 - 1060	1686	Asn-31 to Thr-41, Pro-43 to Asp-49, Glu-56 to Arg-66, Ser-71 to Trp-80, Asn-160 to Val-169, Thr-192 to Val-198, Lys-215 to Asp-226, Asp-234 to Gly-246, Pro-265 to Gly-273.			
	HKAAH36	836040	750	184 - 441	1687	Asn-31 to Thr-41, Pro-43 to Trp-50, Pro-54 to Gly-59, Pro-77 to Cys-84.			
	HKAAH36	838068	751	254 - 1132	1688	Asn-31 to Thr-41, Pro-43 to Asp-49, Glu-56 to Arg-66, Ser-71 to Trp-80, Asn-160 to Val-169, Thr-192 to Val-198, Lys-215 to Asp-226, Asp-234 to Gly-246			

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								Gln-189 to Phe-210, Ala-221 to Gly-226, Arg-274 to Asp-284, Ala-294 to Gly-299.			
	HKACD58	552465	755	35 - 499	1692			Thr-42 to Pro-53, Val-78 to Glu-86, Glu-103 to Met-112, Ala-124 to Gly-131.			
266	HKACH44	545015	276	375 - 509	1213			Cys-25 to Trp-30.	12q24.31	181405	
267	HKACM93	1352383	277	218 - 2293	1214			Ser-5 to Trp-10, Ala-30 to Glu-39, Arg-66 to Trp-72, Glu-84 to Arg-97, Glu-159 to Gly-176, Ile-189 to Glu-197, Glu-206 to Arg-215, Arg-218 to Gly-227, Gly-316 to Ala-322, Pro-430 to Val-435, Pro-446 to Gly-452, Ser-488 to Gly-504, Glu-569 to Lys-575, Pro-581 to Cys-588, Ala-687 to Gln-692.	1		
	HKACM93	907084	756	189 - 548	1693			Ser-5 to Trp-10, Ala-30 to Glu-39, Arg-66 to Trp-72, Glu-84 to Arg-97.			
	HKACM93	907085	757	314 - 1120	1694			Ser-5 to Trp-10, Ala-30 to Glu-39, Arg-66 to Trp-72, Glu-84 to Arg-97, Glu-159 to Gly-176.			

							Ile-189 to Glu-197, Glu-206 to Arg-215, Arg-218 to His-226.			
	HKACM93	906154	758	202 - 255	1695		Trp-2 to Met-16.			
	HKACM93	906150	759	638 - 775	1696		Gln-24 to Gly-31, Pro-33 to Ala-38.			
268	HKAEL80	570865	278	398 - 637	1215		Pro-41 to Gln-50.			
269	HKAEOV06	1352263	279	501 - 1814	1216		Thr-6 to Trp-13, Thr-75 to Gln-80, Thr-112 to Tyr-117, Leu-133 to Pro-138, Ala-146 to Phe-153, Gln-319 to Ser-325, Val-354 to His-372, Pro-391 to Gly-396, Val-405 to Thr-412, Ile-425 to Asp-437.			
	HKAEOV06	638238	760	197 - 370	1697		Thr-6 to Trp-13.			
270	HKAFK41	545018	280	243 - 374	1217			15q22.2	151670, 601780	
271	HKAFK66	946512	281	508 - 831	1218		Ser-51 to Thr-57.			
	HKAFK66	889258	761	508 - 831	1698		Ser-51 to Thr-57.			
	HKAFK66	904790	762	234 - 347	1699		Gln-23 to Asp-28.			
272	HKDBF34	833065	282	69 - 734	1219		Lys-60 to Ala-66, Arg-169 to Cys-186, Asp-199 to Gly-205, Thr-214 to Leu-219.	Xp22	300000, 300066, 300077, 300310, 301220, 302350, 304050, 304110, 306100, 309530, 309585, 312040	
	HKDBF34	587268	763	18 - 332	1700		Lys-60 to Ala-66, Thr-78 to Ser-83.			
273	HKGAT94	762811	283	449 - 745	1220		Asp-32 to Asp-40, Gly-67 to Pro-94.	1,N/A		
	HKGAT94	460631	764	470 - 754	1701					
274	HKGCO27	601969	284	313 - 591	1221		Lys-23 to Lys-29.			



275	HKGCO27	581293	765	57 - 197	1702	Val-37 to Gly-42.		22q12.2	101000, 101000, 101000, 101000, 123620, 138981, 188826, 600850, 601669
	HKISB57	625956	285	130 - 417	1222	Ala-23 to Arg-36, His-38 to Ala-46, Pro-50 to Gly-56, Arg-85 to Val-94.			
276	HKMLK53	587269	286	20 - 229	1223	Gly-27 to Cys-35.	2q35		118800, 123660, 125660, 125660, 193500, 193500, 193500, 193500, 201460, 205100, 237300, 262000, 600266, 601277
277	HKMLM11	514788	287	82 - 474	1224	Ala-59 to Thr-68, Glu-72 to Ser-108, Glu-115 to Lys-126.			
278	HKMLP68	1037919	288	130 - 372	1225	Gln-27 to Trp-33, Gly-53 to Trp-61.			
	HKMLP68	880047	766	153 - 395	1703	Gln-27 to Trp-33, Gly-53 to Trp-61.			
	HKMLP68	583524	767	471 - 611	1704	Lys-17 to Ser-47.			
279	HKMMD13	604751	289	342 - 491	1226				
280	HKMND01	527402	290	23 - 175	1227				
281	HL2AC08	610018	291	64 - 906	1228	Thr-24 to Asn-30, Tyr-104 to Asp-122, Ser-128 to Ser-134, Pro-208 to Lys-222, Lys-233 to Pro-262.	14q21.3	182600, 232700, 602086	
282	HL2AG57	695733	292	560 - 802	1229	Gly-4 to His-10, Asp-32 to Val-38.			
283	HLCND09	1172046	293	146 - 478	1230	Glu-37 to Trp-42, Phe-67 to Gly-88, Pro-101 to Leu-110.			
	HLCND09	1035153	768	38 - 463	1705	Glu-37 to Trp-42.			
284	HLDBE54	836041	294	155 - 1108	1231	Glu-39 to Gly-45, Thr-51 to Gly-60, Ala-63 to Gln-77, Gly-122 to Asn-129,			

						Leu-175 to Ser-181, Thr-193 to Pro-199, Thr-236 to Gly-241, Asn-256 to Lys-279, Glu-311 to Leu-317.			
	HLDBE54	600362	769	130 - 399	1706	Glu-39 to Gly-45, Thr-51 to Gly-60, Ala-63 to Gln-82.			
	HLDBE54	800678	770	133 - 1590	1707	Thr-36 to Arg-41, Pro-55 to Pro-60, Pro-67 to Leu-72, Asn-111 to Ser-118, Cys-138 to Asp-144, Asn-290 to Pro-296, Gly-350 to Phe-358, Gly-379 to Glu-384, Gln-399 to Cys-426, Ser-428 to Ser-438.			
285	HLDBX13	815665	295	303 - 470	1232				
286	HLDNA86	1352197	296	238 - 726	1233	Arg-35 to Ala-41, Phe-55 to Arg-61, Lys-152 to His-163.	16p11.2	147781, 172471, 182381	
	HLDNA86	535730	771	45 - 323	1708	Arg-35 to Ala-41.			
287	HLDON23	636083	297	368 - 709	1234	Arg-28 to Gln-36.	15q23	118485, 151670, 231680, 272800, 272800, 272800, 276700, 600374, 601780	
288	HLDOW79	847396	298	43 - 870	1235	Pro-171 to Gln-179, Leu-218 to Lys-225, Phe-266 to Cys-275.			
289	HLDQC46	847397	299	163 - 426	1236	Lys-76 to Asp-87.	7q11.23	116860, 129900, 233700, 600079	
290	HLDQR62	753742	300	520 - 1005	1237	Arg-122 to Ser-139, Met-144 to Glu-149.	5p15.2- p14.1	123000, 602568	
291	HLDQU79	740755	301	99 - 1142	1238	Leu-68 to Lys-74.	10q21-q22	126090, 129010, 142600, 154545, 250850, 601386, 601493	

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								Asp-85 to Glu-92, Pro-125 to Ser-130, Gly-146 to Ala-154, Leu-170 to Lys-177.				108725, 120700, 133171, 143890, 147670, 147670, 147670, 151440, 164953, 231670, 600276, 600957, 601843
300	HLQDR48	1307726	310	10 - 582	1247			Arg-54 to Asn-65, Glu-80 to Ala-87, Val-170 to Arg-175, Arg-185 to Arg-190.	19p13.2			
	HLQDR48	619979	776	3 - 575	1713							
301	HLTAU74	853614	311	76 - 264	1248			Met-1 to Leu-7, His-26 to Pro-33.				
302	HLTDV50	520231	312	74 - 160	1249							
303	HLTEI25	396672	313	155 - 280	1250							
304	HLTEI06	543017	314	197 - 364	1251			Gln-25 to Phe-43.				
305	HLTFA64	638242	315	268 - 399	1252							
306	HLTHG37	787530	316	50 - 1006	1253			Asn-36 to Lys-42, Lys-53 to Gln-60, Ile-64 to Ala-77, Ala-128 to Tyr-135, Lys-184 to Ala-199, Leu-245 to Leu-250.				
	HLTHG37	743169	777	313 - 441	1714							
307	HLWAA17	629552	317	436 - 996	1254			Lys-17 to Glu-27, Gln-40 to Gly-47.	1q21			104770, 107670, 110700, 135940, 145001, 146790, 152445, 152445, 159001, 174000, 179755, 182860, 182860, 191315, 230800, 230800, 266200, 600897, 601105, 601412, 601652, 602491
308	HLWAA88	588485	318	35 - 376	1255			Ala-43 to Trp-57, Ser-81 to Ser-97, Pro-102 to Cys-113.	10q23.2			174900, 203300, 236730
	HLWAA88	769166	778	51 - 1514	1715			Ala-43 to Trp-57, Ser-81 to Gly-88, Tyr-125 to Asp-134.				

						Pro-141 to Gly-154, Val-172 to Glu-178, Lys-296 to Gly-305, Leu-307 to Arg-314, Thr-335 to His-341.			
309	HLWAD77	653513	319	326 - 748	1256				
310	HLWAE11	783071	320	28 - 861	1257	Asp-55 to Asp-67, Ser-76 to His-81, Lys-96 to Gly-103, Met-111 to Gly-133, Gln-222 to Ile-228, Lys-250 to Tyr-258.	22q13.1	103050, 103050, 124030, 124030, 138981, 182380, 188826, 190040, 190040, 190040	
311	HLWAO22	587270	321	212 - 1276	1258	Cys-126 to Thr-138, Glu-165 to Gly-172, Thr-189 to Leu-200, Gly-222 to Gly-229, Pro-346 to Lys-354.	12q13	107777, 123940, 139350, 139350, 148040, 148041, 148043, 148070, 231550, 600194, 600231, 600536, 600808, 600956, 601284, 601769, 601769, 601928, 602116, 602153	
312	HLWAY54	658702	322	38 - 1054	1259	Asp-27 to Ser-32, Pro-52 to Thr-58, Arg-63 to Asn-70, Gln-78 to Gly-83, Thr-107 to Asn-113, Thr-160 to Val-176, Ser-188 to Gly-241, Leu-248 to Pro-265, Tyr-302 to Gly-314.	12p13.31	125370, 601458	
313	HLWBH18	1045194	323	107 - 289	1260	Arg-18 to Trp-33, Pro-36 to Ser-47.			
	HLWBH18	889277	779	67 - 249	1716	Arg-18 to Trp-33, Pro-36 to Ser-47.			
314	HLWBI63	566842	324	149 - 340	1261	Met-1 to Pro-12.			
315	HLWBK05	765310	325	280 - 1176	1262	Pro-38 to Ile-45.	12q24.31	181405	

316	HLWBY76	797609	326	432 - 1130	1263			7q21.13	129900, 154276, 602136, 602136, 602136, 602447
317	HLWCF05	460619	327	155 - 328	1264				
318	HLYAC95	778075	328	92 - 232	1265				
319	HLYAF80	460622	329	222 - 365	1266				
320	HLYAN59	1352203	330	383 - 613	1267		Val-38 to Cys-45.		
321	HLYAN59	553507	780	254 - 418	1717				
321	HLYAP91	553514	331	280 - 531	1268				
322	HLYAZ61	1352163	332	190 - 855	1269		Asp-59 to Asn-65, Lys-72 to Trp-79, Tyr-110 to Val-121, Ala-204 to Leu-216.	3q25.1	222900, 601402
	HLYAZ61	423998	781	205 - 852	1718		Asp-59 to Asn-65, Lys-72 to Trp-79, Tyr-110 to Val-121, Ala-204 to Asn-215.		
323	HLYBD32	566657	333	98 - 310	1270				
324	HLYES38	638042	334	69 - 287	1271				
325	HMADS41	596831	335	267 - 533	1272			8p23	148370
326	HMADU73	1352177	336	491 - 2629	1273		Arg-48 to Asn-56, Gly-166 to Ser-175, Tyr-250 to Leu-261, Glu-329 to Gly-355, Ala-378 to Tyr-383, Gly-390 to Tyr-413, Pro-422 to Cys-433, Gln-491 to Tyr-496, Phe-511 to Ser-520, Pro-542 to Arg-551, Arg-568 to Val-582, Gly-595 to Glu-601, Gln-608 to Pro-614, Pro-669 to Pro-678.	14q11.2	182600, 186880, 190195, 190195, 222700, 600243, 602279, 602279

	HMADU73	467053	782	115 - 348	1719	Arg-48 to Asn-56.			
327	HMAMI15	1352406	337	4 - 1023	1274	Gly-33 to Lys-41, Pro-52 to Lys-60, Asn-81 to Ala-86, Lys-156 to Met-164, Gln-283 to Lys-292, Glu-303 to Gly-308.			
	HMAMI15	1049263	783	3 - 923	1720	Gly-33 to Lys-41, Pro-52 to Lys-60, Asn-81 to Ala-86.			
328	HMDAE65	520338	338	179 - 412	1275	Asp-18 to His-25, Phe-55 to Tyr-69.			
329	HMDAM24	514394	339	109 - 171	1276		17q21.32		109270, 109270, 109270, 109270, 120150, 120150, 120150, 148065, 148080, 154275, 171190, 173470, 185800, 221820, 249000, 253250, 273800, 273800, 600119, 600119, 600525, 601844
330	HMDAQ29	600406	340	180 - 428	1277	Pro-53 to Thr-65.			
331	HMEAI48	1352290	341	36 - 299	1278	Arg-48 to Lys-55, Gly-61 to Glu-70.	15q22		102578, 109700, 151670, 154550, 601780
	HMEAI48	709671	784	95 - 217	1721	Gln-34 to Lys-40.			
332	HMECK83	636035	342	50 - 211	1279				
333	HMEET96	566720	343	121 - 921	1280	Thr-187 to Lys-192, Asn-255 to Leu-262.	1p12	600234, 602094	
334	HMIAL37	603201	344	49 - 342	1281	Pro-18 to Lys-26.	11p14.3	602092	
335	HMIAP86	726831	345	182 - 1186	1282	Ser-34 to Thr-39, Gln-198 to Leu-205.	Xq24	300046, 300123, 301201, 301835, 301845, 307150, 310490, 311850	
336	HMKCG09	548078	346	221 - 370	1283				
337	HMMAH60	562776	347	142 - 294	1284	Ser-20 to Ser-34, Thr-40 to Ser-46.			
338	HMQDF12	566844	348	63 - 491	1285	Ser-66 to Thr-75.	1q25.1- q32.3	145001, 145260, 150292, 208250, 600759, 600995, 601652, 601975	
339	HMSBX80	597448	349	169 - 342	1286				

340	HMSFS21	545427	350	28 - 141	1287				
341	HMSGGB14	570833	351	138 - 371	1288	Thr-27 to Arg-33.			
342	HMSGT42	383470	352	40 - 315	1289	Pro-65 to Cys-71.	1p31	180069, 180069, 180069, 201450, 248610, 600309, 601676, 602522	
343	HMSHM14	461897	353	103 - 240	1290	Met-1 to Ser-6, Pro-29 to Ser-34.	3q23	106165, 110100, 117700, 117700, 150210, 169600, 180380, 180380, 180380, 203500, 276902, 601199, 601199, 601682	
344	HMSHS36	1127691	354	134 - 445	1291	Thr-28 to Arg-49, Ser-57 to Arg-64, Pro-72 to His-78.			
	HMSHS36	1028961	785	162 - 473	1722	Thr-28 to Arg-49, Ser-57 to Arg-64.			
345	HMSJM65	633637	355	111 - 344	1292	Glu-63 to Trp-72.			
346	HMSJU68	427121	356	272 - 421	1293	Met-1 to Gly-7.			
347	HMSKC04	799540	357	133 - 354	1294	Thr-27 to Arg-33, Gly-37 to Ser-42, Pro-52 to Arg-72.			
348	HMTBI36	1301451	358	256 - 3129	1295	Thr-25 to Lys-31, Leu-116 to Glu-121, Asp-153 to Thr-161, Gly-164 to Arg-170, Ser-216 to Gly-226, Pro-229 to Gln-237, Arg-246 to Glu-260, Arg-291 to Gln-298, Arg-341 to Glu-348, Lys-356 to Ser-364, Gln-387 to Phe-398, Leu-429 to Phe-435, Trp-455 to Ile-463, Tyr-489 to Ala-496, Thr-518 to Ala-525.	3p21.31	116806, 168468, 182280, 212138, 600163	



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362	HNGBC07	1037631	372	81 - 830	1309	Glu-30 to Arg-44, Asp-58 to Cys-67, Pro-70 to Pro-75.	22	
	HNGBC07	904311	795	122 - 256	1732	Gly-27 to Ser-42.		
	HNGBC07	904812	796	55 - 189	1733	Gly-27 to Ser-42.		
363	HNGBT31	408334	373	224 - 538	1310	Ala-83 to Thr-91.		
364	HNGDG40	532617	374	13 - 393	1311	Gln-2 to Gly-10, Asp-77 to Phe-82.		
365	HNGDJ72	532619	375	185 - 523	1312	Asp-15 to Tyr-21, Pro-29 to Asn-39.		
366	HNGDU40	597526	376	333 - 488	1313	Gly-18 to Ser-27, Gly-46 to Asp-51.		
367	HNGEO29	532622	377	98 - 232	1314	Met-1 to Arg-8, Leu-35 to Glu-41.		
368	HNGEP09	499076	378	72 - 320	1315	Asp-45 to Thr-50.		
369	HNGHR74	553443	379	53 - 178	1316			
370	HNGIH43	410179	380	178 - 300	1317		10,C	
371	HNGIJ31	519120	381	135 - 245	1318	Pro-18 to Glu-25.		
372	HNGIQ46	526651	382	221 - 433	1319	Ala-28 to Gly-34, Pro-57 to Thr-66.		
373	HNGJE50	561568	383	77 - 217	1320			
374	HNGJO57	579737	384	87 - 245	1321			
375	HNGJP69	604891	385	321 - 545	1322			
376	HNGJT54	498272	386	172 - 276	1323			
377	HNGKN89	834857	387	436 - 597	1324			
378	HNGOM56	836064	388	391 - 558	1325	Pro-25 to Glu-40, Lys-50 to His-55.		
379	HNGOU56	843515	389	317 - 496	1326	Ser-34 to Thr-40.		
380	HNGOW62	892160	390	167 - 331	1327	Ser-22 to His-40.	10p11.1	
381	HNHAH01	496115	391	328 - 492	1328			
382	HNHCX60	520300	392	158 - 223	1329			
383	HNHCY64	520294	393	258 - 392	1330	Gly-33 to Asn-44.		

384	HNHCY94	520298	394	78 - 221	1331			
385	HNHDW38	531908	395	231 - 368	1332			
386	HNHDW42	410114	396	168 - 383	1333			
387	HNHED17	1352204	397	274 - 426	1334	Lys-36 to Asp-42, Pro-45 to Tyr-51.		
	HNHED17	553511	797	282 - 428	1734	Lys-36 to Asp-42.		
388	HNHEI42	985880	398	52 - 162	1335			
	HNHEI42	902442	798	28 - 138	1735			
	HNHEI42	842223	799	166 - 252	1736			
	HNHEI42	823723	800	331 - 435	1737	Pro-10 to Cys-19.		
389	HNHFO29	463568	399	160 - 699	1336	Lys-97 to Gln-106, Gln-112 to Pro-118, Pro-123 to Lys-130, Arg-153 to Gly-158.		
390	HNHFR04	646709	400	71 - 307	1337			
391	HNHFU32	562728	401	175 - 333	1338	Ala-35 to Asp-44.		
392	HNHOD46	843488	402	12 - 251	1339			
393	HNHOG73	835026	403	342 - 497	1340	Ala-35 to Leu-43.		
394	HNHPD10	834927	404	291 - 413	1341			
395	HNTBI57	570877	405	210 - 386	1342	Met-1 to Trp-15, Thr-52 to Met-58.		
396	HNTCE26	1160395	406	111 - 1316	1343	Tyr-2 to Gly-15, Trp-192 to Asp-199, Lys-248 to Leu-253, Arg-330 to Lys-336, Gln-354 to Val-364, Val-383 to Ser-392.		
	HNTCE26	853373	801	57 - 422	1738	Arg-75 to Lys-81, Gln-99 to Asp-109.		
397	HNTNC20	700627	407	270 - 926	1344	Gln-23 to Gly-30, Gln-35 to Gln-43, Leu-73 to Glu-84.		

							Arg-125 to Pro-133, Ser-140 to Thr-145, Thr-153 to Thr-164.			
398	HNTNI01	1352285	408	307 - 534	1345		Lys-71 to Trp-76.			
	HNTNI01	699848	802	306 - 455	1739					
399	HNTSY18	1041383	409	257 - 526	1346		Pro-53 to Arg-59, Ala-64 to Cys-69.	7		
	HNTSY18	897950	803	420 - 656	1740		Pro-13 to Ser-19, Glu-25 to Glu-31, Pro-44 to Gly-53, Gly-74 to Arg-79.			
400	HOAAC90	1301202	410	33 - 347	1347		Trp-25 to Pro-33, Gln-88 to Pro-93.			
	HOAAC90	518979	804	38 - 352	1741		Trp-25 to Pro-33, Gln-88 to Pro-93.			
401	HOACB38	520201	411	63 - 185	1348					
402	HOCNF19	835049	412	166 - 429	1349		Thr-45 to Pro-56, Ser-66 to Lys-74.			
403	HODDF13	684307	413	46 - 171	1350		Thr-28 to Ser-40.			
404	HODDN65	520348	414	251 - 313	1351					
405	HODDN92	422913	415	434 - 541	1352					
406	HODDO08	790333	416	725 - 1042	1353		Gly-96 to Cys-106.			
407	HODDW40	579256	417	139 - 261	1354					
408	HODEJ32	835027	418	358 - 489	1355					
409	HODFN71	1194866	419	1 - 477	1356		Lys-50 to Phe-57, Ser-70 to Arg-77, Tyr-81 to Ser-87, Pro-112 to Thr-117.			
	HODFN71	834999	805	27 - 473	1742		Lys-39 to Phe-46, Ser-59 to Arg-66, Tyr-70 to Ser-76, Pro-101 to Thr-106.			

410	HODGE68	834907	420	87 - 266	1357	Leu-2 to Gln-7.			162400, 227645, 229700, 278700, 601309, 602088
411	HOEBK34	768325	421	149 - 643	1358	Asp-18 to Arg-31, Leu-38 to Gln-52.	9q22.3		
	HOEBK34	509951	806	68 - 334	1743	Asp-18 to Arg-31, Leu-38 to Leu-53.			
412	HOEBZ89	828177	422	19 - 1020	1359	Lys-34 to Glu-39, Ile-47 to Ser-53, Pro-106 to Leu-111, Pro-140 to Gly-146, Glu-195 to Gly-204, Leu-281 to Thr-288, Glu-291 to Arg-297, Tyr-302 to Ile-308.			
413	HOEDB32	634994	423	104 - 784	1360	Pro-34 to Ser-43, Glu-54 to Ser-60.	17q11.2		154275, 162200, 162200, 182138, 239100, 600881, 601954, 602403
414	HOEDE28	1036480	424	248 - 601	1361	Arg-19 to Met-24, His-64 to Pro-75, Glu-82 to Leu-88.	15		
	HOEDE28	900015	807	387 - 449	1744				
415	HOEDH84	748236	425	256 - 1467	1362	Ser-74 to Ala-84, Gln-156 to Tyr-161, Tyr-184 to Asn-189, Ser-218 to Ile-223, Pro-299 to Ser-308, His-359 to Thr-368, Tyr-390 to Asp-404.			
416	HOEFV61	833079	426	64 - 606	1363	Thr-49 to Arg-54, Leu-147 to Asp-153.			
417	HOFMQ33	1184465	427	49 - 1503	1364	Leu-37 to Gly-44, Thr-137 to Leu-144, Ala-178 to Asn-184, Asp-194 to Val-201,			

							Leu-252 to Glu-258, Asp-280 to Tyr-293, Asn-296 to Thr-301, Asp-322 to Asp-348, Asn-363 to Ser-368, His-370 to Thr-378, Asn-380 to Cys-386, Glu-391 to Cys-399, Leu-421 to Arg-426, Glu-454 to Tyr-459.			
	HOFMQ33	919896	808	48 - 1502	1745		Leu-37 to Gly-44, Pro-46 to Gly-51, Thr-137 to Leu-144, Ala-178 to Asn-184, Asp-194 to Val-201, Leu-252 to Glu-258, Asp-280 to Tyr-293, Asn-296 to Thr-301, Asp-322 to Asp-348, Asn-363 to Ser-368, His-370 to Thr-378, Asn-380 to Cys-386, Glu-391 to Cys-399, Leu-421 to Arg-426, Glu-454 to Tyr-459.			
	HOFMQ33	906694	809	78 - 875	1746		Leu-37 to Gly-43.			
	HOFMQ33	902639	810	724 - 741	1747					
	HOFMQ33	702186	811	123 - 374	1748		Met-2 to Ser-9.			
418	HOFMT75	911180	428	83 - 1315	1365		Thr-30 to Met-36, His-121 to Thr-136, Leu-231 to Gly-236, Thr-248 to Pro-256, Gly-342 to Thr-353.			

	HOFMT75	905365	812	83 - 427	1749	Thr-30 to Met-36.		
	HOFMT75	892308	813	1225 - 1500	1750			
	HOFMT75	892291	814	129 - 1232	1751	Thr-30 to Met-36, Pro-51 to Ser-56, His-121 to Thr-136, Leu-233 to Gly-243, Thr-250 to Ser-258, Thr-265 to Trp-270.		
419	HOFNC14	1352378	429	79 - 297	1366			
	HOFNC14	899292	815	155 - 373	1752			
420	HOFND85	847424	430	167 - 2047	1367	Asp-216 to Gly-224, Asp-268 to Asn-274, Thr-285 to Lys-290, Asp-339 to Pro-345, Ile-356 to Pro-361, Arg-371 to Asn-378, Ala-408 to Tyr-417, Pro-429 to Gln-434, Arg-461 to Pro-466, Ala-475 to Ala-482.		
421	HOFNY91	847425	431	64 - 312	1368	Ser-15 to Thr-31.	7q11.23	116860, 129900, 233700, 600079
422	HOFOC33	1186156	432	76 - 1167	1369	Thr-28 to Tyr-40, Gln-61 to Ser-68, Glu-74 to Lys-95, Glu-163 to Thr-169, Arg-197 to His-204, Ser-210 to Phe-216, Thr-272 to Asp-278, Arg-286 to Gly-291, Cys-310 to Ala-316.		
	HOFOC33	967554	816	81 - 419	1753	Thr-28 to Tyr-40, Gln-61 to Ser-68,		



						Glu-74 to Leu-94.			
	HOF0C33	878690	817	81 - 419	1754	Thr-28 to Tyr-40, Gln-61 to Ser-68.			
	HOF0C33	905734	818	76 - 495	1755	Thr-28 to Tyr-40, Gln-61 to Ser-68, Glu-74 to Lys-95, Thr-119 to Leu-124, Pro-126 to Gln-131.			
	HOF0C33	902326	819	23 - 46	1756				
	HOF0C33	885140	820	158 - 202	1757				
	HOF0C33	806819	821	3 - 866	1758				
423	HOF0C73	931871	433	18 - 407	1370	Pro-22 to Cys-30, Gly-43 to Tyr-53, Ser-55 to Trp-65, Ala-76 to His-81, Pro-101 to Gly-108, Pro-121 to Gly-127.			
	HOF0C73	907073	822	23 - 226	1759	Thr-47 to Pro-55.			
	HOF0C73	907072	823	127 - 171	1760	Pro-1 to Val-7.			
	HOF0C73	878863	824	142 - 162	1761				
424	HOGAW62	579891	434	259 - 426	1371	Met-1 to Gly-6, Trp-23 to Arg-29, Ala-38 to Ser-45.			
425	HOGCK20	745445	435	57 - 1622	1372	Pro-25 to Arg-31, Thr-52 to Val-63, Asn-129 to Lys-135, Gln-197 to Trp-202, Thr-230 to Glu-236, Pro-242 to Tyr-248, Leu-280 to Pro-291, Ser-348 to Ser-356, Pro-362 to Gln-368.	20q12-q13.12	600281, 600281, 602025	

									Thr-398 to His-406, Trp-430 to Leu-435, Glu-499 to Gly-504.				
	HOGCK20	664499	825	53 - 1717	1762				Pro-24 to Arg-30, Thr-51 to Val-62, Asn-128 to Lys-134, Gln-196 to Trp-201, Thr-229 to Glu-235, Pro-241 to Tyr-247, Leu-279 to Pro-290, Ser-347 to Ser-355, Pro-361 to Gln-367, Thr-397 to His-405, Trp-429 to Leu-434, Gln-510 to Val-518.				
426	HOGCK63	895880	436	514 - 1254	1373				Thr-60 to Ala-65, Leu-94 to Glu-99, Cys-182 to Trp-188.				
	HOGCK63	902295	826	1455 - 1472	1763								
427	HOGCS52	919898	437	25 - 1383	1374				Met-28 to Arg-34, Thr-154 to Arg-173, Gly-180 to Tyr-185, Leu-226 to Asp-231, Leu-272 to Lys-277, Thr-378 to Asn-383, Asp-421 to Tyr-433, Leu-442 to Ala-451.				
	HOGCS52	907118	827	30 - 1391	1764				Met-28 to Arg-34, Thr-154 to Arg-173, Gly-180 to Tyr-185, Leu-226 to Asp-231, Leu-272 to Lys-277, Thr-378 to Asn-383.				

						Asp-421 to Arg-431.			
	HOHCS52	867965	828	2 - 289	1765	Ala-1 to Ala-6.			
428	HOHBB49	833080	438	148 - 294	1375	Pro-17 to His-22, Ser-29 to Ser-39.			
429	HOHBC68	603968	439	348 - 734	1376	Pro-37 to Asp-53.			
430	HOHBY12	625973	440	232 - 831	1377	Pro-33 to Phe-43, Pro-48 to Lys-54, His-61 to Val-66.			
431	HOHBY44	873264	441	170 - 724	1378	Glu-23 to Gln-30, Asn-42 to Gly-65, Thr-84 to Lys-100, Glu-105 to Ser-110, Arg-132 to Phe-138, Pro-159 to Arg-172.	15		
	HOHBY44	873263	829	2 - 232	1766				
	HOHBY44	785886	830	54 - 305	1767	Cys-25 to Asn-36.			
432	HOHCC74	547977	442	327 - 473	1379		19q13.4	134790, 191044, 600040, 600138	
433	HOHCH55	827481	443	221 - 1702	1380	Met-1 to Phe-6, Arg-44 to Arg-52, His-64 to Cys-69, Tyr-99 to Gln-147, His-158 to Gly-169, Phe-177 to Asp-182, Cys-194 to Cys-202, Gly-213 to Phe-218, Pro-224 to Gly-236, Asp-254 to Trp-261, Asp-263 to Ala-303, Trp-305 to Cys-316, Lys-326 to Asp-332, Pro-334 to Cys-343, Pro-350 to Asn-370.	13q33	133530, 601295	

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	HOSD125	566845	833	146 - 268	1770	Gly-18 to Lys-23, Pro-31 to Gly-38.		
436	HOSEG51	545809	446	232 - 540	1383	Ser-59 to Glu-67.		
437	HOSFD58	614040	447	56 - 1927	1384	Asn-15 to Trp-20, Ser-36 to Gly-41, Pro-103 to Val-110, Pro-134 to Arg-143, Leu-173 to Arg-178, Ser-190 to Ala-197, His-314 to Arg-319, Arg-354 to Asn-362, Asp-391 to Arg-397, Glu-402 to Asp-409, Asp-434 to Leu-439, Glu-441 to Arg-446, Gly-455 to Asp-462, Pro-528 to His-541, Asn-566 to Arg-571, Tyr-574 to Glu-581, Thr-589 to Glu-603.	4q24	157147, 248510
	HOSFD58	383513	834	477 - 659	1771	Gly-28 to Leu-42, Met-52 to Leu-58.		
438	HOUCQ17	429229	448	508 - 3408	1385	Gly-8 to Leu-14, Met-18 to Phe-30.		
439	HOUDK26	565393	449	214 - 735	1386	Ser-139 to Ser-144, Phe-153 to Leu-159, Gln-162 to Ser-170.		
440	HOVCA92	527644	450	181 - 369	1387			
441	HPASA81	1352382	451	19 - 1818	1388	Asn-46 to Cys-51, Glu-56 to Ser-62, Asp-73 to Glu-79, Phe-158 to Pro-168, Glu-180 to Ile-185,		

							Asp-209 to Asn-214, Phe-229 to Asn-234, Asp-243 to Arg-249, Asn-288 to Cys-301, Arg-322 to Thr-330, Cys-435 to Thr-440, Gly-454 to Lys-462, Ser-498 to Gln-507, Ser-511 to Asp-525, Leu-533 to Gly-541, His-550 to Asn-560, Gln-588 to Tyr-600.				
	HPASA81	900548	835	14 - 958	1772		Asn-46 to Cys-51, Glu-56 to Ser-62, Asp-73 to Glu-79, Phe-158 to Pro-168, Glu-180 to Ile-185, Asp-209 to Asn-214, Phe-229 to Asn-234, Asp-243 to Arg-249, Asn-288 to Asn-293, Lys-297 to Gln-302.				
	HPASA81	801923	836	124 - 342	1773		Asn-46 to Cys-51, Glu-56 to Ser-62.				
442	HPBCU51	411080	452	86 - 445	1389		Leu-20 to Ala-26, Arg-32 to Arg-39, Thr-104 to Gly-112.	9q34.3	120215, 120215, 190198		
443	HPDDC77	1306899	453	51 - 446	1390		Arg-29 to Pro-37, Gln-46 to Val-56.	5q15	162150		
	HPDDC77	422936	837	510 - 905	1774		Arg-29 to Pro-37, Gln-46 to Val-56.				
444	HPDWP28	1094609	454	143 - 292	1391		Thr-35 to Gly-48.	8			
	HPDWP28	1047702	838	133 - 282	1775		Thr-35 to Gly-48.				

445	HPEAD48	520367	455	203 - 496	1392	Gln-51 to Thr-61, Ser-65 to Thr-71, Pro-85 to Gln-91.		
446	HPEBE79	519003	456	79 - 126	1393			
447	HPFCL43	535710	457	21 - 260	1394	Pro-14 to Asp-25, Leu-51 to Val-63.	5	
448	HPFDG48	542227	458	283 - 426	1395		Xp11.23- p11.22	300008, 300008, 300008, 300047, 300071, 300110, 300600, 301000, 301000, 301830, 309470, 309500, 309610, 309850, 311050, 312060
449	HP1AQ68	833082	459	20 - 208	1396			
450	HP1BO15	1310868	460	128 - 763	1397	Asp-40 to Glu-50, Ser-59 to Gly-69, Leu-109 to Lys-117, Tyr-130 to Leu-137, Leu-140 to Glu-160, Gly-202 to Tyr-208.		
	HP1BO15	590741	839	127 - 648	1776	Asp-40 to Glu-50, Ser-59 to Gly-69, Ala-98 to His-105, Arg-108 to Glu-114, Pro-124 to Ser-138, Ala-143 to Gly-154.		
451	HP1CB53	1042309	461	170 - 325	1398		11,12	
	HP1CB53	867835	840	163 - 318	1777			
452	HP1BK12	1011467	462	126 - 272	1399		4,8	
	HP1BK12	525375	841	119 - 265	1778			
	HP1BK12	796925	842	969 - 1001	1779			
	HP1BK12	699587	843	509 - 523	1780			
453	HP1CL22	1146674	463	86 - 325	1400	Arg-50 to Leu-56.	10,2	
	HP1CL22	1034817	844	136 - 378	1781	Arg-50 to Leu-56.		
	HP1CL22	1046434	845	232 - 666	1782	Thr-43 to Asp-59, Gly-88 to Gly-94,		

454	HPJCW04	589969	464	44 - 217	1401	Lys-105 to Ile-115.		
455	HPJEX20	1352420	465	23 - 544	1402	Leu-26 to Ser-33.		
	HPJEX20	1184442	846	31 - 375	1783	Gln-102 to Ser-108.	1	
	HPJEX20	975252	847	170 - 694	1784	Gln-102 to Ser-108.		
	HPJEX20	894744	848	84 - 767	1785			
	HPJEX20	898220	849	565 - 816	1786	Ser-23 to Thr-32, Ala-37 to Gln-44.		
456	HPMAI22	635491	466	483 - 662	1403			
457	HPMFP40	638165	467	37 - 171	1404		Xq28	300031, 300044, 300048, 300049, 300055, 300100, 300100, 300104, 300126, 301201, 301590, 302060, 302060, 302060, 302060, 302960, 303700, 303800, 303900, 304800, 305900, 305900, 305900, 306700, 306995, 308310, 308840, 308840, 308840, 309200, 309548, 309620, 309900, 310300, 310400, 310460, 310460, 311300, 311510, 314300, 314400
458	HPMGJ45	798102	468	119 - 265	1405		13q22	131244, 256731, 602085
459	HPQAC69	396804	469	82 - 195	1406		2p21	120435, 120435, 126600, 135300, 136435, 152790, 152790, 157170, 182601, 601771
460	HPRBC80	829136	470	94 - 1254	1407	Asp-6 to His-13, Asp-114 to Gly-131, Thr-166 to Gln-181, Val-210 to Thr-216, Pro-222 to Tyr-227.		
	HPRBC80	720095	850	404 - 613	1787			
461	HPRBF19	753282	471	63 - 635	1408	Phe-4 to Ala-10, Gln-142 to Pro-150, Glu-156 to Glu-161, Leu-177 to Ala-190.	16p13.11	145505, 186580, 278760
462	HPITG19	635033	472	215 - 364	1409			
463	HPTVX32	634353	473	318 - 560	1410	Ser-3 to Lys-8.	19p13.11	143890, 151440, 600276, 601843
464	HPVAB94	526749	474	80 - 214	1411			
465	HPWAY46	1001560	475	468 - 626	1412		4	
	HPWAY46	876469	851	474 - 632	1788			



	HPWAY46	789574	852	178 - 435	1789				
466	HPWDJ42	722246	476	149 - 310	1413	Pro-21 to Pro-26, Arg-31 to Asn-37.			
	HPWDJ42	709662	853	149 - 313	1790	Pro-21 to Pro-26, Arg-31 to Asn-37.			
	HPWDJ42	692213	854	161 - 301	1791	Pro-21 to Pro-26, Arg-31 to Lys-37.			
467	HPZAB47	585702	477	34 - 177	1414	Lys-32 to Lys-38.			
468	HRAAB15	658717	478	35 - 514	1415	Asn-49 to Gln-54, Glu-150 to Asp-159.			
469	HRABA80	882176	479	144 - 452	1416	Ala-30 to Gly-36, Asp-45 to Trp-50, Lys-65 to Cys-71, Pro-80 to Cys-87.			
	HRABA80	588460	855	130 - 438	1792	Ala-30 to Gly-36, Asp-45 to Trp-50, Lys-65 to Cys-71, Pro-80 to Cys-87.			
470	HRACD15	871221	480	252 - 410	1417				
	HRACD15	706332	856	252 - 413	1793				
471	HRACD80	1309774	481	196 - 1923	1418	Thr-29 to Ser-37, His-89 to Gly-94, Asn-124 to Gln-130, Ala-163 to Val-168, Cys-196 to Arg-201, Gln-244 to Gln-264, His-288 to Tyr-294, Leu-314 to Gln-319, Ala-392 to Ser-399, Pro-412 to Asp-419, Ala-452 to Pro-460, Arg-466 to Thr-473.			

	HRACD80	882163	857	191 - 1915	1794	Lys-32 to Ser-37, His-89 to Gly-94, Asn-124 to Gln-130, Ala-163 to Val-168, Cys-196 to Arg-201, Gln-244 to Gln-264, His-288 to Tyr-294, Leu-314 to Gln-319, Ala-392 to Ser-399, Pro-412 to Asp-419, Ala-452 to Pro-460, Arg-466 to Thr-473.		
	HRACD80	740762	858	191 - 631	1795	Gly-31 to Thr-38, Arg-84 to His-89, Pro-122 to Pro-129, Thr-29 to Pro-34.		
472	HRDDV47	637650	482	146 - 976	1419			
473	HRDFD27	567004	483	82 - 333	1420			
474	HR0AJ03	567005	484	19 - 597	1421	Lys-41 to Arg-47, Asp-125 to Lys-139, Ser-177 to Glu-185.		
475	HRTAE58	519326	485	244 - 420	1422	Phe-48 to Cys-54.		
476	HSATR82	531973	486	74 - 199	1423			
477	HSAUK57	772554	487	322 - 570	1424	Leu-40 to Arg-48, Thr-62 to Thr-67.	5	
	HSAUK57	490870	859	327 - 473	1796			
478	HSAUL82	490879	488	140 - 289	1425	Thr-25 to Asp-38.		
479	HSAPH65	545459	489	104 - 406	1426	Ser-58 to His-64.		
480	HSAPK10	561435	490	131 - 253	1427			
481	HSAWD74	460527	491	142 - 570	1428	Leu-51 to Gly-77, Ile-117 to Pro-125.	7	
	HSAWD74	371416	860	122 - 256	1797	Thr-25 to Cys-30, Pro-35 to Arg-42.		

482	HSAWZ41	580872	492	98 - 271	1429	Ile-46 to Tyr-56.			
483	HSAXA83	545051	493	92 - 316	1430			1p13.1	102770, 201810, 601414, 601691, 601691, 601691, 601691, 601718, 602094
484	HSAYB43	604143	494	89 - 226	1431	Asp-29 to Tyr-34.			
485	HSAYM40	462797	495	190 - 381	1432				
486	HSDAJ46	692358	496	299 - 1087	1433	Tyr-24 to His-32, Pro-38 to Ala-44, Pro-66 to Glu-75, His-111 to Gly-116, Tyr-139 to Ser-146, Thr-176 to Ser-181, Lys-239 to Lys-249.			
487	HSDEK49	1352253	497	60 - 1256	1434	Val-29 to Val-37, Asp-71 to His-76, Gln-78 to Gly-84, Met-105 to His-110, Trp-117 to Asn-123, Lys-179 to Pro-187, Gly-218 to Asp-224, Leu-237 to Ala-243, Thr-256 to Asp-268, Ser-275 to Lys-280, Arg-308 to Glu-314, Glu-326 to Glu-332, Cys-343 to Asp-359.	Xq12- q13.3	300011, 300011, 300011, 300127, 305450, 309605, 313700, 313700, 313700, 313700, 313700, 314580	
	HSDEK49	625998	861	126 - 1043	1798	Val-29 to Val-37, Asp-71 to His-76, Gln-78 to Gly-84, Met-105 to His-110, Trp-117 to Gly-122, Gln-136 to Lys-141, Leu-143 to Ala-149, Thr-162 to Asp-174,			

							Ser-181 to Lys-186, Arg-214 to Glu-220, Glu-232 to Glu-238, Cys-249 to Asp-265.			
488	HSDER95	664502	498	72 - 287	1435		Pro-42 to Lys-49, Lys-56 to Lys-71.			
489	HSDEZ20	1352287	499	58 - 423	1436		Phe-8 to Ser-13, Val-81 to Arg-87, Asp-98 to Pro-104.			
	HSDEZ20	704101	862	66 - 359	1799		Phe-8 to Ser-13, Ala-84 to Ser-90.			
490	HSDFW45	589974	500	118 - 330	1437					
491	HSDJA15	795252	501	247 - 705	1438		Thr-32 to Lys-40, Lys-146 to Glu-152.			
492	HSDJL82	460602	502	79 - 237	1439		Pro-45 to Gln-52.			
493	HSDJL42	1036471	503	84 - 737	1440	5	His-170 to Pro-181, Ser-204 to Pro-210.			
	HSDJL42	904821	863	27 - 686	1800		His-172 to Pro-183, Ser-206 to Pro-212.			
	HSDJL42	905623	864	78 - 737	1801					
494	HSDJM31	491112	504	351 - 473	1441			8q21.3- q22.1	216550, 222745	
495	HSDSB09	1301498	505	16 - 423	1442		Glu-33 to Glu-56, Thr-75 to Cys-81.			
	HSDSB09	463645	865	22 - 387	1802		Glu-33 to Glu-56, Thr-75 to Cys-81.			
496	HSDSE75	545057	506	160 - 705	1443		Tyr-15 to Leu-59, Ala-68 to Asp-85, Pro-87 to Asn-96, His-120 to Lys-129, Ser-153 to Gln-170.			
497	HSDZR57	651375	507	27 - 212	1444		Glu-50 to Glu-61.	19q13.33	134790, 600040	

498	HSIAX21	612823	508	177 - 392	1445	Leu-23 to Met-30.	4	
499	HSIAS17	1352191	509	431 - 1201	1446	Ser-95 to Glu-102, Ala-110 to Tyr-115, Gln-176 to Ile-184, Gln-192 to Asp-203, Ala-210 to Ile-220, Lys-229 to Arg-240, Leu-242 to Val-251.		
	HSIAS17	514183	866	108 - 764	1803	Met-99 to Ala-114.		
500	HSICV24	1352248	510	117 - 884	1447	Asn-22 to Ile-29, Glu-41 to Lys-50, Arg-58 to Gln-73, Gln-78 to Glu-89, Val-91 to Glu-101, Gln-109 to Arg-128, Glu-133 to Thr-139, Leu-146 to Cys-156, Pro-163 to Trp-168, Tyr-174 to Glu-198, Leu-202 to Lys-213, Gln-216 to Asn-223, Leu-230 to Gly-238, Gln-241 to Trp-246.	13q13.3	600631
	HSICV24	612877	867	150 - 326	1804	Asn-22 to Ile-29, Ala-33 to Arg-51.		
501	HSID181	589447	511	8 - 184	1448	Glu-37 to Gly-45.		
502	HSIDX71	1033671	512	200 - 379	1449	Pro-53 to Glu-59.		
	HSIDX71	902162	868	200 - 379	1805	Pro-53 to Glu-59.		
503	HSIBQ79	1304677	513	41 - 586	1450	Gly-16 to Arg-32, Ala-42 to Asn-50, Glu-66 to Gln-76, Arg-85 to Gly-94.	19q13.33	134790, 600040

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							Ser-305 to Ala-318, Val-320 to Arg-327, Pro-342 to Thr-351, Thr-383 to Thr-399, Leu-414 to Lys-435, Thr-449 to Ala-457, Gly-461 to Asn-479, Gly-483 to Gln-498, Asn-504 to Val-509.				
	HSKDA27	872570	873	12 - 1673	1810		Gly-27 to Arg-32, Thr-51 to Glu-58, Ser-60 to Ser-75, Arg-83 to Asp-92, Arg-99 to Ala-105, Asp-116 to Arg-122, Gly-290 to Ala-314, Val-316 to Arg-323, Pro-338 to Arg-345, Thr-358 to His-375, Arg-403 to Ser-408, Ser-420 to Ser-436, Thr-447 to Ala-455, Gly-459 to Asn-477, Gly-481 to Gln-496, Ser-501 to Arg-512, Lys-530 to Lys-554.				
506	HSKHZ81	1307105	516	64 - 807	1453		Gly-76 to Leu-83, Ala-108 to Glu-113, Ala-126 to Lys-132, Gly-145 to Leu-151, Gln-161 to Val-166, Ala-180 to Gln-185, Gly-190 to Ala-198,				



	HSKHZ81	552233	874	57 - 800	1811	Asn-203 to Gly-216. Gly-76 to Leu-83, Ala-108 to Glu-113, Ala-126 to Lys-132, Gly-145 to Leu-151.			
507	HSKNB56	548077	517	484 - 741	1454	Thr-23 to Pro-29, Thr-68 to Pro-76.			
508	HSLCQ82	1352226	518	226 - 477	1455				
	HSLCQ82	589526	875	233 - 406	1812				
509	HSLJG37	1016920	519	114 - 242	1456		15		
	HSLJG37	852244	876	206 - 334	1813				
	HSLJG37	895206	877	1331 - 1351	1814				
510	HSODE04	906081	520	202 - 327	1457	Thr-24 to Leu-33.	6		
	HSODE04	906498	878	300 - 425	1815	Thr-24 to Leu-33.			
511	HSPBF70	793744	521	429 - 722	1458	Arg-54 to Leu-60, Ala-73 to Gly-78.			
512	HSQEO84	1306702	522	87 - 743	1459	Ala-19 to Val-31, Arg-38 to Gly-49, Ala-61 to Lys-66, Tyr-68 to Pro-78, Gly-116 to Ala-121, Asp-154 to Ser-162, Glu-173 to Gln-186, Phe-194 to Gly-203, Pro-207 to Val-212.	2q31.3	100690, 142989, 156232, 178600, 600258	
	HSQEO84	602258	879	91 - 747	1816	Ala-19 to Val-31, Arg-38 to Gly-49, Ala-61 to Lys-66, Tyr-68 to Pro-78, Gly-116 to Ala-121, Asp-154 to Ser-162, Glu-173 to Gln-186.			

							Phe-194 to Gly-203, Pro-207 to Val-212.			
	HSQEO84	401251	880	86 - 256	1817		Ala-19 to Val-31, Arg-38 to Asp-50.			
513	HSSAJ29	630636	523	103 - 246	1460			10q22	126090, 129010, 142600, 250850, 601386, 601493	
514	HSSDX51	566879	524	133 - 285	1461					
515	HSSFT08	589978	525	125 - 301	1462					
516	HSSGD52	1352343	526	344 - 2161	1463		Pro-7 to Cys-12, Lys-48 to Tyr-62, Arg-182 to His-187, Leu-189 to Glu-196, Thr-211 to Gly-226, Leu-270 to Thr-275, Gly-278 to Gly-289, Pro-444 to Asn-449, Glu-453 to Lys-461, Gly-491 to Thr-496, Ser-525 to Trp-532.	14q11.2	182600, 186880, 190195, 190195, 222700, 600243, 602279, 602279	
	HSSGD52	845666	881	338 - 2155	1818		Pro-7 to Cys-12, Lys-48 to Tyr-62, Arg-182 to His-187, Leu-189 to Glu-196, Thr-211 to Gly-226, Leu-270 to Thr-275, Gly-278 to Gly-289, Pro-444 to Asn-449, Glu-453 to Lys-461, Gly-491 to Thr-496, Ser-525 to Trp-532.			
517	HSSGG82	618535	527	203 - 391	1464					
518	HSSJC35	1306937	528	62 - 949	1465		Pro-40 to Arg-50, Ser-72 to Arg-77.			

							His-82 to Leu-91, Gln-171 to Glu-189, Val-203 to Gly-222, Pro-263 to Thr-269, Ser-282 to Trp-287.			
	HSSJC35	745409	882	55 - 939	1819		Pro-40 to Arg-50, Ser-72 to Arg-77, His-82 to Leu-91, Gln-171 to Glu-189, Val-203 to Gly-222, Pro-263 to Thr-269, Ser-282 to Trp-287.			
	HSSJC35	716424	883	66 - 176	1820		Arg-32 to Leu-37.			
519	HSTBJ86	753250	529	120 - 371	1466		Pro-38 to Gly-44, Phe-56 to Thr-64.			
520	HSUBW09	413246	530	153 - 323	1467		Asp-23 to Gly-29.			
521	HSVAM10	520328	531	46 - 201	1468					
522	HSVAT68	637680	532	63 - 329	1469		Met-33 to Pro-39, Ser-74 to Trp-79.			
523	HSVBU91	596868	533	256 - 528	1470		Asp-26 to Asn-31, Ser-37 to His-49, Ala-65 to Ser-73.	7q11.23	116860, 129900, 233700, 600079	
524	HSXCG83	944388	534	101 - 901	1471					
	HSXCG83	830673	884	211 - 729	1821		Phe-84 to Asn-90.			
525	HSXEQ06	1016924	535	123 - 305	1472		Ser-23 to Trp-30.	14		
	HSXEQ06	889664	885	136 - 318	1822		Ser-23 to Trp-30.			
	HSXEQ06	895602	886	1271 - 1324	1823					
526	HSXG147	886200	536	87 - 260	1473					
527	HSYAV50	847358	537	155 - 2173	1474		Cys-28 to Pro-33, Arg-41 to Pro-52, Glu-118 to Glu-127, Tyr-130 to Arg-135.			

						Ser-224 to Arg-230, Ser-322 to His-329, Glu-388 to Ala-396, Pro-404 to Pro-411, Ser-443 to Thr-454, Val-456 to Arg-462, Asn-500 to Arg-507.				
528	HSYAV66	686437	538	186 - 395	1475		12q15-q21	181430, 217300, 600698, 600698, 600698, 600698, 600808, 602116		
529	HSYAZ50	1027673	539	131 - 301	1476		2			
	HSYAZ50	852318	887	345 - 515	1824					
	HSYAZ50	902235	888	723 - 1040	1825	Arg-1 to Asn-9, Pro-24 to Ile-32, Val-95 to Cys-106.				
	HSYAZ50	882732	889	2 - 838	1826	Glu-1 to Glu-8, Pro-38 to Gly-45, Leu-53 to Gly-60, Glu-112 to Arg-117, Lys-153 to Lys-163, Trp-245 to Ala-251, Phe-259 to Gly-273.				
530	HSYAZ63	1177537	540	448 - 1749	1477	Gln-14 to Thr-21, Arg-26 to Pro-31, Leu-43 to Pro-50, Leu-81 to Asp-88, Pro-153 to Thr-158, Leu-211 to Thr-222, Asp-228 to Asn-233, Pro-273 to Glu-282.	16q22	103850, 114835, 121360, 217800, 218030		
	HSYAZ63	862063	890	215 - 337	1827	Ser-22 to His-32.				
531	HSYBG37	1056317	541	47 - 964	1478	Ser-47 to Pro-57, Ser-77 to Glu-82,	16p13.3	141750, 141800, 141800, 141800, 141800, 141850, 141850, 141850, 156850, 186580, 191092, 600140.		

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							Pro-74 to Lys-79, Pro-85 to Glu-107, Tyr-118 to Tyr-136, Gln-144 to Gln-152, Ala-182 to Asn-195, Arg-203 to Val-208, Leu-212 to Ser-217, Gly-222 to Val-234.			
	HT5GJ57	740767	893	122 - 694	1830		Ser-29 to Thr-57, Pro-74 to Lys-79, Pro-85 to Glu-107, Tyr-118 to Tyr-136, Gln-144 to Gln-152, Ala-182 to Glu-188.			
535	HTADW91	844835	545	59 - 1150	1482					
536	HTADX17	753289	546	92 - 520	1483		Glu-15 to Arg-23, Asn-79 to Gly-84, Ser-101 to Gly-106, Ser-111 to Asn-116.	1q23.1	107300, 131210, 136132, 145001, 173610, 601652	
	HTADX17	457172	894	84 - 512	1831		Glu-15 to Arg-23, Asn-79 to Gly-84.			
537	HTAEE28	1018291	547	319 - 1167	1484		Pro-255 to Leu-264.			
	HTAEE28	882919	895	372 - 737	1832					
	HTAEE28	864120	896	124 - 771	1833					
538	HTDAF28	396835	548	38 - 301	1485		Pro-22 to Glu-33.	15q33.33- q23	118485, 151670, 231680, 272800, 272800, 272800, 276700, 600374, 601780	
539	HTEAF65	866485	549	135 - 362	1486		Phe-30 to Lys-37, Pro-43 to Lys-75.			
540	HTEBI28	462221	550	43 - 246	1487		Arg-24 to Arg-41, Pro-56 to Trp-64.			
541	HTEDF80	587326	551	696 - 1076	1488		Pro-68 to Asp-73, Gln-92 to Glu-107.			

542	HTEDY42	1352193	552	19 - 717	1489	Gln-120 to Lys-126, Glu-43 to Asn-49, Cys-75 to Lys-88, Glu-120 to Asp-125, Pro-182 to Ser-188, Pro-210 to Gln-216.		
	HTEDY42	519372	897	19 - 252	1834	Glu-43 to Asn-49.		
543	HTEFU65	543396	553	231 - 371	1490	Gly-35 to Gly-40.		
544	HTEGA76	381995	554	90 - 284	1491			
545	HTEGI42	908143	555	26 - 799	1492	Asp-61 to Gln-68, Gly-180 to Lys-185.		
	HTEGI42	904624	898	145 - 915	1835			
	HTEGI42	850770	899	1 - 282	1836			
	HTEGI42	847564	900	1081 - 1326	1837	Pro-1 to Arg-15.		
	HTEGI42	830165	901	670 - 849	1838			
546	HTEHR24	835894	556	84 - 572	1493	Met-1 to Thr-6, Gly-45 to Asn-61, Ala-63 to Asn-72.	6q16.1	136550, 602772
	HTEHR24	513039	902	41 - 415	1839	Met-1 to Thr-6, Gly-45 to Asn-74.		
547	HTEHU93	722254	557	188 - 616	1494	Arg-21 to Thr-29, Tyr-56 to Lys-63, Ser-93 to Ser-100, Glu-109 to Lys-116.	20pter- q11.23	
	HTEHU93	423009	903	187 - 528	1840	Arg-21 to Thr-29.		
548	HTEIP36	520468	558	22 - 198	1495	Glu-33 to Arg-45.		
549	HTEIV80	584798	559	203 - 346	1496			
550	HTEIN13	1352272	560	156 - 779	1497	Tyr-37 to Cys-49, Gly-51 to Tyr-56, Lys-88 to Trp-93, Phe-125 to Lys-140, Lys-147 to Thr-153.	1p12	600234, 602094

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						Ser-120 to Tyr-125, Gln-186 to Leu-199, Glu-202 to Tyr-213, Ser-225 to Cys-233, Thr-269 to Ser-284, Gly-308 to Val-328, Asp-350 to Ala-357, Arg-367 to Gln-372, Arg-429 to Thr-434, Gly-444 to Thr-449, Thr-466 to Val-481, Val-485 to Ser-499, Ser-534 to Arg-540, Met-564 to Ile-570, Asn-573 to Phe-589, Pro-603 to Val-611, Arg-706 to Gly-711, Glu-717 to Asp-725, Ser-732 to Ser-738, Gln-743 to Glu-749, Leu-799 to Asp-805.				
	HTJML75	873355	908	335 - 529	1845	Gly-49 to His-56.				
561	HTLAA40	519329	571	33 - 248	1508	Ser-36 to Trp-41, Pro-53 to Arg-58.	16q22.1	103850, 114835, 116800, 140100, 140100, 192090, 192090, 192090, 245900, 245900, 276600, 600223		
562	HTLBE23	902187	572	129 - 266	1509	Gly-35 to Cys-41.				
	HTLBE23	885431	909	205 - 222	1846					
563	HTLEP53	634852	573	73 - 378	1510	Ser-33 to Lys-43.				
564	HTLFE42	460583	574	116 - 349	1511	Ser-22 to Thr-32, Pro-37 to Ser-42.				
565	HTLFE57	1352310	575	124 - 687	1512	Asp-32 to Glu-37, Ala-41 to Phe-46, His-171 to Ala-176.	18q23	250790		

	HTLFE57	791409	910	189 - 698	1847	Ala-23 to His-34, His-153 to Ala-158.		
	HTLFE57	608317	911	110 - 619	1848	Ala-23 to His-34, His-153 to Ala-158.		
566	HTLGE31	1035130	576	51 - 311	1513	Val-31 to Gly-49.	9q34.12	
567	HTLHY14	838460	577	36 - 776	1514	His-22 to Tyr-32, Trp-56 to Lys-62, Ile-72 to Leu-77, Ile-126 to Gly-136, Tyr-187 to Ala-193, Ile-206 to Thr-214.	19p13.3	108725, 120700, 133171, 136836, 145981, 147141, 164953, 188070, 600957, 601238, 601846, 602216, 602477
568	HTLIT32	833906	578	288 - 1028	1515	Ser-83 to Tyr-88, Ala-129 to Ser-134, Ser-227 to Ala-233.		
569	HTLIV19	1046341	579	110 - 364	1516		3	
570	HTNBO91	519313	580	7 - 129	1517			
571	HTOAK16	560744	581	87 - 419	1518	Asp-27 to Ser-36.		
572	HTODK73	526021	582	43 - 222	1519	Gln-27 to Arg-36.	20q13.33	
573	HTODO72	532001	583	183 - 257	1520			
574	HTOGR42	838160	584	14 - 181	1521	Pro-35 to Ser-40.		
	HTOGR42	570751	912	13 - 195	1849			
575	HTOHM15	1028538	585	30 - 215	1522			
	HTOHM15	848199	913	23 - 208	1850			
	HTOHM15	848200	914	71 - 1036	1851	Arg-1 to Gly-7, Phe-11 to Arg-23.		
	HTOHM15	848196	915	1555 - 1596	1852			
576	HTOHT18	628300	586	433 - 594	1523	Leu-39 to Ser-47.		
577	HTOIY21	665745	587	91 - 783	1524	Pro-22 to Pro-28, Pro-41 to His-48, Pro-79 to His-86, Pro-126 to Phe-134, Ser-137 to Met-143.		

578	HTOIZ02	826312	588	243 - 395	1525	Gln-176 to Ser-186.	17	
	HTOIZ02	847904	916	2 - 721	1853	Arg-20 to Val-29. Gly-1 to Glu-11, His-16 to Pro-24, Gly-31 to Arg-37, Asp-43 to Leu-49.		
579	HTOJA73	797108	589	100 - 225	1526			
580	HTOJK60	545067	590	217 - 315	1527			
581	HTPBW79	1317835	591	178 - 1263	1528	Leu-21 to Ala-30, Ser-38 to Asp-47, Pro-87 to Asp-94, Leu-197 to Thr-204, Pro-256 to Ser-262, Thr-277 to Arg-282, Thr-293 to Val-302, Lys-315 to Arg-321.	11	
	HTPBW79	581435	917	302 - 1390	1854	Leu-21 to Ala-30, Ser-38 to Asp-47, Pro-87 to Asp-94, Leu-197 to Thr-204, Pro-256 to Ser-262, Thr-277 to Arg-282, Thr-293 to Trp-303.		
	HTPBW79	396459	918	92 - 1336	1855	Leu-21 to Ala-30, Ser-38 to Asp-47, Pro-87 to Asp-94, Leu-197 to Arg-202, Pro-287 to Ser-293, Thr-308 to Arg-313, Thr-324 to Trp-334.		
582	HTSEW17	460579	592	170 - 283	1529			
583	HTTDB46	812763	593	55 - 1011	1530	Tyr-67 to Pro-74.		

							Ser-117 to Gln-123, Pro-161 to Met-185, Gly-224 to His-242, Thr-299 to Trp-307.			
	HTTDB46	909573	919	153 - 1535	1856		Tyr-67 to Pro-74, Ser-117 to Gln-123, Pro-161 to Met-185, Thr-54 to Ile-59.			
584	HTWCT03	429618	594	334 - 639	1531			14q11.2-	160760, 160760, 182600, 186880, 190195, 190195, 222700,	
585	HTWDF76	714344	595	316 - 570	1532			q12	600243, 600792, 601369, 602086, 602279, 602279	
586	HTXAJ12	1310814	596	91 - 426	1533		Lys-99 to Arg-107.			
	HTXAJ12	567434	920	91 - 426	1857		Lys-99 to Arg-107.			
587	HTXCV12	1352213	597	175 - 480	1534		Gln-29 to Gly-38, Lys-57 to Asp-62.			
	HTXCV12	567006	921	183 - 458	1858		Gln-29 to Gly-38, Lys-57 to Asp-62.			
588	HTXDW56	695765	598	217 - 822	1535		Glu-24 to Tyr-35, Arg-83 to Thr-92, Pro-148 to Gly-154.	1p36.13- q41	115665, 120550, 120570, 120575, 130500, 133200, 167410, 172430, 600975	
589	HTXFL30	620001	599	30 - 338	1536		Met-1 to Gly-6, Arg-11 to Gly-21.	3		
590	HTXKF95	891275	600	421 - 657	1537		Met-1 to Pro-6, Gly-73 to Thr-78.			
	HTXKF95	834438	922	330 - 566	1859		Met-1 to Pro-6, Gly-73 to Thr-78.			
591	HTXKP61	824083	601	169 - 297	1538			1p34	130500, 133200, 138140, 168360, 171760, 171760, 176100, 176100, 178300, 230000, 255800	
592	HUDBZ89	1352211	602	1085 - 1303	1539		Pro-24 to Pro-37.	20q11.23		
	HUDBZ89	562791	923	197 - 361	1860		Pro-24 to Pro-37.			
593	HUFBY15	1352349	603	49 - 525	1540		Ser-44 to Leu-51, Arg-81 to Cys-94, Thr-132 to Tyr-140.			

	HUFBY15	846380	924	74 - 508	1861	Arg-143 to Ile-154. Ser-44 to Leu-51, Arg-81 to Cys-94, Thr-118 to Tyr-126, Arg-129 to Ile-140.		
594	HUFEB62	645101	604	190 - 393	1541			
	HUFEB62	630097	925	182 - 388	1862			
595	HUKAH51	1352424	605	286 - 738	1542	Trp-35 to Trp-45, Pro-52 to Asp-57, Thr-73 to Arg-82, Pro-105 to Leu-112, Pro-115 to Arg-127, Pro-140 to Gln-151.		
	HUKAH51	1300737	926	144 - 572	1863	Trp-35 to Trp-45, Pro-52 to Asp-57, Thr-73 to Thr-80, Pro-96 to Leu-103, Pro-106 to Arg-118, Pro-131 to Gln-142.		
	HUKAH51	603538	927	55 - 414	1864	Trp-35 to Trp-45, Pro-52 to Asp-57, Thr-73 to Thr-80, Pro-96 to Leu-103, Pro-106 to Leu-119.		
596	HUKBT29	694590	606	74 - 1594	1543	Thr-35 to Lys-43, Pro-59 to Arg-64.	1q42	106150, 106150, 145260, 173870, 173870, 600759, 600996, 601744, 601975
597	HUSIG64	566762	607	9 - 1010	1544	Pro-51 to Arg-56, Lys-89 to Gln-94, Glu-144 to Gln-151, Gln-178 to Gln-183, Leu-224 to Gln-229, Tyr-284 to Pro-298.	4q21.1	173910, 252500, 252500

598	HUSXSS0	1352367	608	280 - 1845	1545	Lys-324 to Lys-334. Gly-39 to Thr-44, Asn-51 to Thr-62, Pro-88 to Pro-104, Ser-109 to Phe-124, Ala-190 to Asn-196, Gln-388 to Glu-394, Gln-402 to Gly-409, Asn-427 to Leu-439, Glu-447 to Thr-453, Pro-468 to Gln-474, Pro-476 to Phe-482, Arg-498 to Arg-504, Arg-508 to Arg-518.		
	HUSXSS0	883176	928	281 - 1666	1865	Gly-39 to Thr-44, Asn-51 to Thr-62, Pro-88 to Pro-104, Ser-109 to Ser-114.		
	HUSXSS0	655372	929	179 - 703	1866	Gln-54 to Gly-61, Asn-79 to Leu-91, Glu-99 to Thr-105, Pro-120 to Gln-126, Pro-128 to Phe-134, Arg-150 to Arg-156, Arg-160 to Arg-170.		
599	HVARW53	1194812	609	111 - 668	1546	Arg-128 to Tyr-134.	2	
	HVARW53	1044491	930	96 - 590	1867			
600	HWAAD63	838626	610	322 - 825	1547	Pro-53 to Trp-61.		
	HWAAD63	833089	931	322 - 483	1868			
	HWAAD63	793875	932	312 - 818	1869			
601	HWABA81	580889	611	57 - 203	1548	Pro-30 to Asn-36.		
602	HWABY10	768334	612	263 - 766	1549	Pro-67 to Ser-73.	6	

603	HWADJ89	799506	613	581 - 709	1550		1p36.31- p36.11	120550, 120570, 120575, 130500, 133200, 600975
604	HWBAO62	838164	614	52 - 687	1551	Ile-40 to Glu-45, Cys-63 to Val-69, Glu-83 to Asn-94, Pro-107 to Cys-115, Phe-137 to Ser-143, Ser-159 to Thr-167, Glu-200 to Tyr-210.		
	HWBAO62	625914	933	81 - 386	1870	Ile-40 to Glu-45, Cys-63 to Val-69, Glu-83 to Phe-95.		
605	HWBAR88	836469	615	156 - 383	1552		6q24.3	600320
606	HWBCB89	1093347	616	37 - 600	1553	Gln-20 to Phe-25, Gly-58 to Ala-66, Gln-69 to Leu-74, Asn-87 to Ile-100, Thr-135 to Trp-142.	1q24-q41	1107300, 131210, 136132, 145001, 145260, 173610, 276901, 600332, 600759, 601518, 601652, 601744, 601975
	HWBCB89	886210	934	35 - 598	1871	Gln-20 to Phe-25, Gly-58 to Ala-66, Gln-69 to Leu-74, Asn-87 to Ile-100, Thr-135 to Trp-142.		
607	HWBCP79	846382	617	243 - 560	1554	Trp-47 to Thr-54, Ser-68 to Asn-73, Ser-86 to Gly-92.		
	HWBCP79	646977	935	233 - 550	1872	Trp-47 to Thr-54.		
608	HWBDP28	1352265	618	1342 - 1542	1555	Ser-25 to Phe-31.	8p21.3	602629
	HWBDP28	638536	936	132 - 314	1873	Ser-25 to Phe-31, Lys-55 to Arg-61.		
609	HWBFE57	907063	619	227 - 1132	1556	Phe-8 to Pro-15, Glu-43 to Leu-54,		

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615	HWHGZ51	886212	625	33 - 1073	1562	Lys-39 to Cys-44, Pro-87 to Gly-93, Gln-107 to Ala-115, Glu-130 to Val-138, Glu-149 to Ser-155, Asn-163 to Tyr-169, Gln-217 to Phe-231, Pro-265 to Pro-273, Pro-275 to Val-284, Ala-288 to Arg-295, Gln-304 to Gly-325.	19q13.32	134790, 152780, 152780, 600040
616	HWHL34	805642	626	131 - 694	1563	Pro-16 to Phe-21, Pro-24 to Arg-35, Arg-92 to Pro-98, Asn-143 to Lys-151, Leu-169 to Ile-176.		
	HWHL34	801943	943	209 - 517	1880	Arg-40 to Pro-46.		
	HWHL34	341560	944	101 - 664	1881	Pro-16 to Phe-21, Pro-24 to Arg-35, Arg-92 to Pro-98, Asn-143 to Lys-151, Leu-169 to Ile-176.		
617	HWLEV32	1032602	627	39 - 176	1564			
	HWLEV32	873296	945	29 - 166	1882			
	HWLEV32	881710	946	3 - 410	1883			
	HWLEV32	846351	947	1 - 423	1884	His-7 to Gly-15, Pro-89 to Arg-95, Pro-103 to His-109.		
618	HWLH65	793713	628	129 - 626	1565			
619	HWTBK81	460568	629	139 - 606	1566	Tyr-59 to Gln-68, His-84 to Leu-90, Ser-105 to Asn-110.		

[illegible]

### Table 1B.2

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21	HAIBP89	727543	31	<p>AR193: 1, AR230: 1, AR039: 1, AR190: 1, AR299: 1, AR260: 1, AR104: 1, AR188: 1, AR300: 1, AR225: 1, AR283: 1, AR232: 1, AR308: 1, H0657: 1, S0212: 1, S0360: 1, S0132: 1, H0628: 1, L0766: 1, L0803: 1, L0776: 1, H0539: 1, L0731: 1 and H0422: 1.</p> <p>AR291: 10, AR296: 10, AR269: 10, AR298: 9, AR165: 8, AR176: 8, AR166: 8, AR164: 8, AR182: 8, AR268: 7, AR180: 7, AR289: 7, AR270: 7, AR052: 7, AR183: 7, AR284: 7, AR192: 7, AR244: 7, AR161: 7, AR186: 7, AR297: 7, AR261: 7, AR162: 7, AR163: 6, AR225: 6, AR207: 6, AR197: 6, AR250: 6, AR309: 6, AR282: 6, AR255: 6, AR285: 6, AR257: 6, AR214: 6, AR287: 6, AR265: 6, AR266: 6, AR204: 6, AR275: 6, AR312: 6, AR178: 6, AR247: 5, AR184: 5, AR294: 5, AR246: 5, AR224: 5, AR292: 5, AR175: 5, AR198: 5, AR264: 5, AR181: 5, AR263: 5, AR201: 5, AR267: 5, AR290: 5, AR053: 5, AR286: 5, AR193: 5, AR212: 5, AR213: 5, AR202: 5, AR236: 5, AR288: 5, AR293: 5, AR168: 5, AR240: 5, AR217: 5, AR308: 5, AR169: 5, AR254: 4, AR248: 4, AR206: 4, AR216: 4, AR231: 4, AR061: 4, AR249: 4, AR205: 4, AR173: 4, AR253: 4, AR273: 4, AR235: 4, AR229: 4, AR174: 4, AR055: 4, AR238: 4, AR243: 4, AR089: 4, AR233: 4, AR171: 4, AR179: 4, AR199: 4, AR228: 4, AR189: 4, AR262: 4, AR283: 4, AR177: 4, AR196: 4, AR310: 4, AR170: 4, AR239: 3, AR295: 3, AR188: 3, AR311: 3, AR096: 3, AR221: 3, AR185: 3, AR314: 3, AR313: 3, AR316: 3, AR223: 3, AR230: 3, AR245: 3, AR271: 3, AR300: 3, AR104: 3, AR203: 3, AR277: 3, AR273: 3, AR251: 3, AR272: 3, AR236: 3, AR172: 2, AR299: 2, AR227: 2, AR195: 2, AR033: 3, AR060: 3, AR277: 3, AR273: 3, AR251: 3, AR272: 3, AR236: 3, AR172: 2, AR299: 2, AR227: 2, AR232: 2, AR039: 2, AR219: 2, AR280: 2, AR211: 2, AR259: 2, AR215: 2, AR236: 2, AR218: 2, AR210: 1, AR241: 1, AR260: 1, AR274: 1, AR315: 1, L2598: 70, L3153: 8, H0677: 8, L0748: 7, H0556: 6, L0769: 6, L0747: 6, H0599: 5, H0521: 5, H0135: 4, L0770: 4, L0775: 4, L0439: 4, L0759: 4, S0434: 4, S0222: 3, H0620: 3, H0617: 3, H0412: 3, L3905: 3, L0659: 3, L0438: 3, H0547: 3, S0406: 3, L0758: 3, H0542: 3, H0265: 2, H0664: 2, S0360: 2, H0734: 2, S0132: 2, L0471: 2, H0012: 2, S0388: 2, H0266: 2, H0087: 2, H0646: 2, L0662: 2, L0766: 2, L0352: 2, S0404: 2, L0744: 2, L0779: 2, L0757: 2, S0436: 2, L0596: 2, H0543: 2, H0423: 2, S0040: 1, H0638: 1, S0420: 1, S0354: 1, S0358: 1, S0376: 1, L3649: 1, H0728: 1, S0046: 1, L2817: 1, L0717: 1, S0278: 1, H0369: 1, H0392: 1, H0592: 1, L0623: 1, H0486: 1, S0280: 1, T0048: 1, S0049: 1, H0052: 1, H0194: 1, H0597: 1, H0231: 1, H0320: 1, H0107: 1, S6028: 1, H0292: 1, H0039: 1, H0628: 1, H0181: 1, H0182: 1, H0606: 1, H0673: 1, H0591: 1, H0040: 1, H0551: 1, H0494: 1, H0561: 1, S0142: 1, S0344: 1, S0002: 1, L0369: 1, L0640: 1, L0371: 1, L3904: 1, L0372: 1, L0646: 1, L0764: 1, L0648: 1, L0768: 1, L0774: 1, L0776: 1, L0655: 1, L0517: 1, L5622: 1, L0788: 1, L0666: 1, L0664: 1, L2651: 1, L0709: 1, L0710: 1, L2261: 1, L2264: 1, L2654: 1, H0701: 1, L2413: 1, T0068: 1, L3811: 1, H0519: 1, H0682: 1, H0684: 1, H0658: 1, H0539: 1, S0380: 1, H0518: 1, S0152: 1, H0522: 1, L0745: 1, L0749: 1, L0755: 1, L0731: 1, H0445: 1, L0599: 1, H0665: 1 and H0008: 1.</p>
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27	HAMFK58	647105	37	<p>AR252: 1, AR250: 1, H0644: 6, L0748: 6, H0038: 4, H0040: 4, L0759: 4, L1878: 3, H0013: 3, H0050: 3, L0769: 3, L0771: 3, L0666: 3, L0777: 3, S0192: 3, H0265: 2, H0556: 2, S0040: 2, S0342: 2, H0656: 2, S0420: 2, S0007: 2, L2550: 2, H0575: 2, H0286: 2, H0622: 2, H0032: 2, H0090: 2, L0770: 2, L0662: 2, L0663: 2, L2654: 2, L0438: 2, S0027: 2, S0028: 2, L0439: 2, L0740: 2, L0752: 2, L0731: 2, L0757: 2, S0436: 2, L0595: 2, S0026: 2, H0543: 2, L0411: 1, H0170: 1, H0717: 1, H0294: 1, S0134: 1, L2906: 1, L2962: 1, S0212: 1, S0354: 1, S0046: 1, H0645: 1, H0619: 1, H0351: 1, S0278: 1, H0333: 1, H0042: 1, T0048: 1, H0581: 1, H0196: 1, H0746: 1, H0596: 1, T0110: 1, H0327: 1, H0009: 1, H0051: 1, S0051: 1, H0284: 1, H0039: 1, H0068: 1, H0400: 1, H0623: 1, H0100: 1, H0560: 1, H0561: 1, H0509: 1, S0344: 1, L0763: 1, L0796: 1, L0772: 1, L0766: 1, L0774: 1, L0775: 1, L0654: 1, L0776: 1, L0809: 1, L2263: 1, H0144: 1, L2709: 1, H0547: 1, H0593: 1, S0126: 1, L3199: 1, H0690: 1, H0658: 1, S0330: 1, S0152: 1, H0521: 1, S0044: 1, S0392: 1, L0747: 1, L0749: 1, L0750: 1, L0755: 1, L0758: 1, L0599: 1, S0242: 1, S0194: 1 and H0423: 1.</p> <p>AR271: 14, AR195: 14, AR196: 12, AR162: 11, AR161: 11, AR201: 10, AR163: 9, AR089: 9, AR188: 8, AR165: 8, AR272: 8, AR164: 8, AR197: 7, AR243: 7, AR199: 7, AR253: 7, AR246: 6, AR207: 5, AR219: 5, AR203: 5, AR205: 5, AR200: 5, AR053: 5, AR242: 5, AR218: 5, AR215: 4, AR193: 4, AR311: 4, AR191: 4, AR039: 4, AR166: 4, AR212: 4, AR174: 4, AR264: 4, AR180: 4, AR215: 4, AR210: 4, AR198: 4, AR308: 4, AR192: 4, AR312: 4, AR240: 3, AR213: 3, AR181: 3, AR316: 3, AR175: 3, AR269: 3, AR313: 3, AR231: 3, AR247: 3, AR214: 3, AR250: 3, AR290: 3, AR204: 3, AR221: 3, AR060: 3, AR261: 3, AR270: 3, AR299: 3, AR189: 3, AR236: 2, AR173: 2, AR183: 2, AR190: 2, AR266: 2, AR096: 2, AR234: 2, AR104: 2, AR171: 2, AR177: 2, AR274: 2, AR217: 2, AR185: 2, AR268: 2, AR182: 2, AR237: 2, AR216: 2, AR238: 2, AR288: 2, AR230: 2, AR226: 2, AR257: 2, AR033: 2, AR179: 2, AR176: 2, AR255: 2, AR227: 2, AR267: 2, AR277: 2, AR283: 2, AR168: 2, AR263: 2, AR258: 2, AR229: 2, AR055: 2, AR232: 2, AR239: 2, AR285: 2, AR233: 2, AR224: 1, AR295: 1, AR287: 1, AR297: 1, AR291: 1, AR309: 1, AR286: 1, AR300: 1, AR061: 1, AR262: 1, AR282: 1, AR289: 1, AR296: 1, L0748: 10, S0476: 6, H0013: 6, H0547: 6, L0439: 6, L0754: 6, H0556: 5, H0052: 5, L0593: 5, S0418: 4, H0046: 4, H0024: 4, L0662: 4, L0766: 4, L0667: 4, H0144: 4, L3828: 4, L0779: 4, H0692: 3, S0358: 3, S0440: 3, L0520: 3, H0659: 3, H0648: 3, L0755: 3, L0731: 3, L0759: 3, S0384: 3, H0171: 2, H0265: 2, H0294: 2, S0282: 2, H0638: 2, S0442: 2, S0045: 2, H0156: 2, H0051: 2, H0266: 2, H0252: 2, H0039: 2, H0617: 2, H0488: 2, L0770: 2, L0776: 2, L0783: 2, L0663: 2, L0438: 2, H0519: 2, L0749: 2, L0757: 2, L0588: 2, L0485: 2, S0011: 2, H0352: 2, H0624: 1, H0685: 1, S0444: 1, S0360: 1, S0408: 1, H0208: 1, S0046: 1, H0393: 1, S0014: 1, H0370: 1, H0600: 1, H0587: 1, L3817: 1, H0244: 1, L0021: 1, H0599: 1, H0575: 1, H0706: 1, S0010: 1, H0318: 1, H0581: 1, L0738: 1, H0545: 1, H0123: 1, L0471: 1, H0012: 1, S0022: 1, L0483: 1, H0644: 1, H0111: 1, H0673: 1, S0036: 1, H0135: 1, H0038: 1, H0268: 1, H0413: 1, H0059: 1, L0475: 1, H0560: 1, S0438: 1, S0150: 1, L0773: 1, L0364: 1, L0389: 1, L0650: 1, L0775: 1, L0378: 1, L0655: 1, L0518: 1, L0664: 1, L0641: 1, L0374: 1, L0764: 1, L0773: 1, L0364: 1, L0773: 1, L0389: 1, L0650: 1, L0775: 1, L0378: 1, L0655: 1, L0518: 1, L0664: 1, S0006: 1, L3824: 1, L3825: 1, H0520: 1, H0684: 1, H0658: 1, H0672: 1, S0328: 1, H0539: 1, L0602: 1, S0152: 1, H0696: 1, S0406: 1, H0555: 1, H0345: 1, L0747: 1, L0752: 1, S0260: 1, H0445: 1, H0707: 1, S0434: 1, S0436: 1, L0597: 1, L0591: 1, L0599: 1, L0601: 1, H0653: 1, H0542: 1, H0543: 1, S0042: 1 and S0424: 1.</p>
28	HAMGG68	731859	38	<p>AR313: 34, AR275: 32, AR104: 32, AR165: 29, AR039: 27, AR033: 27, AR164: 27, AR196: 26, AR161: 25, AR162: 24, AR089: 24, AR163: 23, AR271: 23, AR096: 22, AR240: 21, AR312: 21, AR174: 20, AR250: 20, AR205: 19, AR180: 19, AR264: 19, AR282: 18, AR175: 18, AR185: 18, AR179: 18, AR269: 18, AR238: 18, AR193: 18, AR308: 17,</p>

29	HANGG89	845690	39	AR300: 17, AR182: 17, AR173: 17, AR270: 17, AR192: 17, AR247: 16, AR191: 16, AR198: 16, AR299: 16, AR242: 16, AR268: 16, AR188: 16, AR309: 16, AR311: 15, AR211: 15, AR219: 15, AR207: 14, AR178: 14, AR316: 14, AR212: 14, AR060: 14, AR285: 14, AR201: 14, AR213: 14, AR199: 14, AR218: 14, AR181: 14, AR189: 13, AR295: 13, AR258: 13, AR262: 13, AR290: 13, AR229: 13, AR254: 12, AR177: 12, AR195: 12, AR176: 12, AR171: 12, AR168: 12, AR234: 12, AR231: 12, AR263: 12, AR296: 12, AR291: 12, AR253: 12, AR257: 12, AR169: 11, AR226: 11, AR172: 11, AR210: 11, AR288: 11, AR245: 11, AR246: 11, AR053: 11, AR252: 10, AR197: 10, AR235: 10, AR203: 10, AR190: 10, AR221: 10, AR260: 10, AR297: 10, AR293: 10, AR236: 10, AR287: 10, AR294: 10, AR274: 9, AR277: 9, AR223: 9, AR224: 9, AR225: 9, AR233: 9, AR272: 9, AR216: 9, AR255: 9, AR261: 9, AR215: 9, AR200: 9, AR267: 9, AR214: 8, AR237: 8, AR286: 8, AR170: 8, AR239: 8, AR217: 8, AR243: 8, AR230: 8, AR266: 8, AR222: 7, AR256: 7, AR204: 6, AR228: 6, AR289: 6, AR283: 6, AR227: 6, AR055: 4, AR061: 4, L0805: 7, L0666: 3, L0439: 3, H0052: 2, L0773: 2, L0794: 2, L0740: 2, L0779: 2, H0685: 1, S0418: 1, L3388: 1, S0222: 1, H0050: 1, H0320: 1, H0252: 1, H0030: 1, H0059: 1, H0560: 1, H0773: 1, L3815: 1, L0520: 1, L0770: 1, L0646: 1, L0771: 1, L0662: 1, L0363: 1, L0803: 1, L0774: 1, L0375: 1, L0776: 1, L0655: 1, L0659: 1, H0670: 1, S0378: 1, H0753: 1, S0406: 1, L0748: 1, L0757: 1, L0758: 1, S0436: 1, L0597: 1, L0591: 1, L0366: 1 and S0412: 1.
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	HANGG89	844216	640	
	HANGG89	692291	641	
30	HAPBS03	656755	40	AR218: 47, AR219: 45, AR313: 38, AR316: 26, AR089: 22, AR096: 20, AR039: 18, AR299: 18, AR185: 16, AR300: 13, AR104: 13, AR240: 11, AR055: 11, AR277: 10, AR060: 8, AR282: 8, AR283: 5, S0422: 15, L0766: 8, H0014: 6, L0005: 5, S0360: 5, L3827: 5, H0657: 4, L0789: 4, H0413: 3, L0646: 3, L0805: 3, L0655: 3, L0777: 3, L0591: 3, S0242: 3, H0543: 3, L3643: 2, S0442: 2, S0376: 2, L0770: 2, L0764: 2, L0649: 2, L0650: 2, L0775: 2, L0659: 2, L0783: 2, L0663: 2, L0665: 2, L3832: 2, H0696: 2, L0751: 2, L0747: 2, L0758: 2, L0596: 2, H0352: 2, H0170: 1, H0656: 1, S0420: 1, S0354: 1, H0637: 1, S0045: 1, H0749: 1, H0393: 1, S0300: 1, L0717: 1, L3816: 1, H0486: 1, H0042: 1, H0575: 1, H0004: 1, H0318: 1, H0052: 1, H0046: 1, L0157: 1, H0017: 1, H0356: 1, H0644: 1, H0180: 1, H0068: 1, H0038: 1, T0067: 1, H0561: 1, L5575: 1, L0771: 1, L0662: 1, L0803: 1, L0804: 1, L0776: 1, L0606: 1, L0661: 1, L0657: 1, L0656: 1, L0809: 1, L0532: 1, L2262: 1, L0771: 1, L0662: 1, L0803: 1, L0804: 1, L0776: 1, L0606: 1, L0661: 1, L0657: 1, L0656: 1, L0809: 1, L0532: 1, L2262: 1.

31	HAPNY86	587261	41	<p>I, L3828: 1, H0659: 1, S0378: 1, S0380: 1, H0710: 1, H0521: 1, H0694: 1, S0406: 1, L0748: 1, L0740: 1, L0754: 1, L0750: 1, L0752: 1, L0731: 1, H0445: 1, S0436: 1, L0485: 1, L0608: 1, L0593: 1, L0595: 1, S0026: 1, H0667: 1 and S0424: 1.</p> <p>AR241: 9, AR268: 8, AR186: 8, AR176: 8, AR270: 7, AR197: 7, AR183: 7, AR175: 7, AR269: 7, AR254: 7, AR221: 6, AR182: 6, AR274: 6, AR252: 6, AR204: 6, AR206: 6, AR181: 6, AR184: 6, AR246: 6, AR246: 6, AR290: 6, AR201: 6, AR309: 6, AR266: 6, AR228: 5, AR198: 5, AR178: 5, AR207: 5, AR165: 5, AR163: 5, AR161: 5, AR162: 5, AR171: 5, AR273: 5, AR164: 5, AR250: 5, AR061: 5, AR238: 5, AR166: 5, AR289: 5, AR202: 5, AR055: 5, AR214: 5, AR298: 5, AR195: 5, AR052: 5, AR205: 5, AR192: 4, AR243: 4, AR291: 4, AR236: 4, AR271: 4, AR053: 4, AR282: 4, AR312: 4, AR257: 4, AR293: 4, AR284: 4, AR229: 4, AR226: 4, AR261: 4, AR296: 4, AR177: 4, AR216: 4, AR275: 4, AR185: 4, AR233: 4, AR193: 4, AR247: 4, AR264: 4, AR237: 4, AR227: 4, AR235: 4, AR292: 4, AR245: 4, AR295: 4, AR239: 4, AR232: 4, AR230: 3, AR299: 3, AR213: 3, AR300: 3, AR287: 3, AR174: 3, AR231: 3, AR194: 3, AR191: 3, AR212: 3, AR313: 3, AR262: 3, AR223: 3, AR286: 3, AR255: 3, AR297: 3, AR288: 3, AR217: 3, AR033: 3, AR089: 3, AR294: 3, AR272: 3, AR173: 3, AR060: 3, AR311: 3, AR285: 3, AR308: 3, AR234: 3, AR179: 3, AR203: 3, AR169: 3, AR190: 3, AR172: 2, AR316: 2, AR256: 2, AR259: 2, AR199: 2, AR277: 2, AR200: 2, AR222: 2, AR189: 2, AR253: 2, AR168: 2, AR188: 2, AR210: 2, AR265: 2, AR283: 2, AR240: 2, AR244: 2, AR224: 2, AR225: 2, AR104: 2, AR039: 2, AR249: 2, AR218: 2, AR096: 2, AR219: 2, AR196: 2, AR258: 2, AR310: 2, AR180: 1, AR170: 1, AR314: 1, H0575: 7, L0756: 5, S0360: 3, L0779: 3, L0599: 3, H0624: 2, H0662: 2, L0663: 2, H0521: 2, L0759: 2, H0170: 1, H0208: 1, H0486: 1, H0599: 1, H0024: 1, S0003: 1, H0039: 1, H0163: 1, H0040: 1, H0131: 1, H0131: 1, L0763: 1, L0638: 1, L0646: 1, L0648: 1, L0662: 1, L0768: 1, L0655: 1, L0809: 1, H0144: 1, L0744: 1, L0750: 1 and H0506: 1.</p>
32	HAPNY94	699770	42	<p>AR253: 10, AR309: 9, AR161: 6, AR162: 6, AR163: 6, AR263: 6, AR264: 5, AR181: 5, AR274: 5, AR180: 5, AR096: 5, AR176: 5, AR170: 5, AR182: 4, AR178: 4, AR177: 4, AR053: 4, AR311: 4, AR268: 4, AR270: 4, AR165: 4, AR240: 4, AR225: 4, AR164: 4, AR229: 4, AR231: 4, AR235: 4, AR228: 4, AR166: 4, AR269: 4, AR312: 4, AR272: 4, AR308: 4, AR217: 4, AR183: 4, AR267: 4, AR243: 3, AR233: 3, AR230: 3, AR282: 3, AR239: 3, AR171: 3, AR247: 3, AR237: 3, AR289: 3, AR290: 3, AR174: 3, AR236: 3, AR293: 3, AR175: 3, AR238: 3, AR291: 3, AR288: 3, AR213: 3, AR257: 3, AR173: 3, AR191: 3, AR179: 3, AR316: 3, AR189: 3, AR061: 3, AR196: 3, AR089: 3, AR226: 3, AR190: 3, AR300: 3, AR188: 3, AR232: 3, AR255: 2, AR224: 2, AR261: 2, AR286: 2, AR277: 2, AR185: 2, AR296: 2, AR262: 2, AR215: 2, AR216: 2, AR287: 2, AR223: 2, AR295: 2, AR055: 2, AR285: 2, AR271: 2, AR297: 2, AR200: 2, AR299: 2, AR222: 2, AR227: 2, AR104: 2, AR039: 2, AR234: 2, AR275: 2, AR294: 2, AR203: 2, AR199: 2, AR313: 2, AR212: 2, AR169: 1, AR172: 1, AR193: 1, AR283: 1, AR060: 1, AR211: 1, AR219: 1, L0794: 8, H0556: 5, S0414: 4, L0769: 4, L0779: 4, H0031: 3, H0644: 3, L0803: 3, S0216: 3, H0547: 3, S0328: 3, H0422: 3, H0265: 2, H0220: 2, H0484: 2, S0360: 2, S0410: 2, H0688: 2, H0617: 2, H0634: 2, H0413: 2, L0763: 2, L0655: 2, L0665: 2, H0659: 2, H0521: 2, L0751: 2, L0753: 2, L0758: 2, S0114: 1, H0650: 1, H0300: 1, S0420: 1, S0356: 1, S0354: 1, H0580: 1, S0046: 1, S0222: 1, H0455: 1, H0643: 1, H0559: 1, L3655: 1, H0250: 1, H0069: 1, H0635: 1, H0042: 1, H0575: 1, H0581: 1, S0049: 1, H0052: 1, H0545: 1, L0045: 1, H0622: 1, H0641: 1, S0002: 1, L0800: 1, L0648: 1, L0662: 1, L0768: 1, L0766: 1, L0804: 1, L0653: 1, L0776: 1, L0809: 1, L0789: 1, L0793: 1, H0699: 1, H0660: 1, L0740: 1, L0750: 1, L0777: 1, L0755: 1, L0731: 1, L0593: 1 and H0542: 1.</p>
33	HAPPW30	1352278	43	<p>AR174: 24, AR235: 23, AR196: 23, AR177: 22, AR191: 19, AR175: 19, AR233: 19, AR288: 19, AR179: 18, AR190: 17, H0542: 1.</p>

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	HBGNU56	1050255	648	
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53	HBIFU48	460392	63		

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	HCEWE17	460407	661		
74	HCEWE20	543370	84		AR253: 8, AR053: 6, AR196: 6, AR198: 5, AR191: 5, AR313: 5, AR245: 4, AR181: 4, AR174: 4, AR195: 4, AR189: 3, AR096: 3, AR089: 3, AR213: 3, AR177: 3, AR270: 3, AR254: 3, AR300: 3, AR190: 3, AR269: 3, AR224: 3, AR247: 3, AR188: 2, AR275: 2, AR175: 2, AR226: 2, AR165: 2, AR171: 2, AR312: 2, AR179: 2, AR162: 2, AR180: 2, AR164: 2,

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93	HCWGU37	1042325	103	AR165: 7, AR164: 6, AR166: 6, AR313: 6, AR161: 5, AR162: 5, AR163: 5, AR089: 5, AR263: 5, AR039: 5, AR252: 4, AR173: 4, AR275: 4, AR178: 3, AR185: 3, AR212: 3, AR240: 3, AR268: 3, AR300: 3, AR193: 3, AR223: 3, AR196: 3, AR096: 3, AR247: 3, AR192: 3, AR262: 3, AR179: 3, AR234: 3, AR195: 3, AR053: 3, AR312: 3, AR229: 3, AR104: 3, AR222: 3, AR282: 3, AR060: 3, AR297: 3, AR174: 3, AR213: 3, AR269: 2, AR257: 2, AR285: 2, AR308: 2, AR175: 2, AR291: 2, AR261: 2, AR277: 2, AR191: 2, AR218: 2, AR311: 2, AR255: 2, AR272: 2, AR258: 2, AR316: 2, AR182: 2, AR201: 2, AR207: 2, AR237: 2, AR203: 2, AR286: 2, AR246: 2, AR233: 2, AR231: 2, AR296: 2, AR290: 2, AR236: 2, AR264: 2, AR199: 2, AR188: 2, AR288: 1, AR293: 1, AR295: 1, AR299: 1, AR205: 1, AR181: 1, AR287: 1, AR214: 1, AR294: 1, AR232: 1, AR238: 1, AR033: 1, AR228: 1, AR226: 1, AR267: 1, AR219: 1, AR239: 1, AR211: 1, H0589: 60,



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	HDPBI32	590733	674	
105	HDPBQ71	1160316	115	<p>AR281: 64, AR202: 46, AR280: 44, AR315: 42, AR314: 41, AR194: 37, AR206: 29, AR244: 28, AR265: 26, AR310: 25, AR241: 22, AR246: 21, AR249: 21, AR292: 20, AR284: 20, AR251: 19, AR273: 19, AR033: 19, AR263: 19, AR205: 18, AR283: 18, AR248: 17, AR052: 17, AR096: 17, AR213: 16, AR299: 16, AR282: 15, AR275: 15, AR243: 15, AR298: 15, AR039: 14, AR232: 14, AR198: 13, AR313: 13, AR274: 13, AR259: 13, AR300: 13, AR271: 12, AR270: 12, AR295: 12, AR247: 11, AR186: 11, AR185: 11, AR192: 11, AR277: 11, AR218: 11, AR266: 11, AR204: 11, AR291: 11.</p>

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115	HDPJF37	704487	125	AR227: 3, AR268: 3, AR294: 3, AR290: 3, AR234: 3, AR232: 3, AR226: 3, AR300: 2, AR250: 2, AR282: 2, AR256: 2, AR061: 2, AR053: 2, AR233: 2, AR260: 2, AR228: 2, AR055: 2, H0521: 1, AR215: 15, AR225: 14, AR253: 11, AR213: 10, AR221: 9, AR223: 9, AR217: 8, AR196: 8, AR311: 8, AR212: 8, AR214: 8, AR218: 7, AR250: 7, AR053: 7, AR309: 7, AR270: 7, AR216: 7, AR291: 7, AR096: 7, AR219: 7, AR254: 7, AR165: 7, AR263: 7, AR164: 7, AR161: 7, AR162: 7, AR269: 6, AR172: 6, AR163: 6, AR224: 6, AR183: 6, AR264: 6, AR268: 6, AR089: 6, AR240: 6, AR297: 6, AR180: 6, AR199: 6, AR173: 6, AR313: 5, AR290: 5, AR308: 5, AR246: 5, AR222: 5, AR168: 5, AR197: 5, AR039: 5, AR299: 5, AR191: 5, AR275: 5, AR261: 5, AR262: 5, AR316: 5, AR285: 5, AR175: 5, AR229: 5, AR300: 5, AR282: 5, AR267: 5, AR174: 5, AR295: 5, AR207: 5, AR255: 5, AR195: 5, AR169: 5, AR293: 5, AR312: 5, AR176: 5, AR272: 5, AR243: 5, AR287: 4, AR181: 4, AR189: 4, AR247: 4, AR170: 4, AR257: 4, AR192: 4, AR245: 4, AR188: 4, AR266: 4, AR277: 4, AR177: 4, AR271: 4, AR200: 4, AR193: 4, AR236: 4, AR179: 4, AR182: 4, AR294: 4, AR296: 4, AR060: 4, AR210: 4, AR286: 4, AR288: 4, AR211: 4, AR178: 3, AR289: 3, AR166: 3, AR190: 3, AR171: 3, AR033: 3, AR238: 3, AR231: 3, AR185: 3, AR234: 3, AR201: 3, AR198: 3, AR230: 3, AR283: 3, AR227: 3, AR226: 3, AR237: 3, AR274: 3, AR104: 3, AR232: 3, AR203: 3, AR204: 2, AR233: 2, AR235: 2, AR258: 2, AR061: 2, AR055: 2, AR228: 2, AR239: 2, AR256: 1, L0803: 2, H0521: 2, L0754: 2, H0657: 1, S0001: 1, H0661: 1, S0444: 1, S0045: 1, S0278: 1, H0253: 1, H0581: 1, H0572: 1, H0050: 1, L0055: 1, H0412: 1, T0042: 1, H0625: 1, S0344: 1, L0662: 1, L0653: 1, L0789: 1, L0666: 1, H0520: 1, S0152: 1, L0777: 1 and L0731: 1.
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	HDPMM88	885059	682	
	HDPMM88	874074	683	
	HDPMM88	854246	684	
	HDPMM88	854245	685	
117	HDPNC61	637585	127	AR241: 10, AR184: 10, AR313: 8, AR245: 8, AR242: 8, AR265: 8, AR162: 7, AR192: 7, AR161: 7, AR271: 7, AR163: 7,

118	HDPND46	637586	128	<p>AR244: 7, AR052: 6, AR191: 6, AR183: 6, AR312: 6, AR196: 6, AR173: 6, AR197: 6, AR273: 6, AR198: 6, AR204: 6, AR165: 6, AR053: 5, AR310: 5, AR166: 5, AR274: 5, AR264: 5, AR229: 5, AR164: 5, AR175: 5, AR174: 5, AR270: 5, AR039: 5, AR238: 5, AR311: 5, AR275: 5, AR300: 5, AR189: 5, AR292: 5, AR033: 5, AR200: 5, AR096: 5, AR177: 5, AR182: 5, AR219: 5, AR296: 5, AR309: 4, AR178: 4, AR218: 4, AR206: 4, AR186: 4, AR240: 4, AR213: 4, AR205: 4, AR266: 4, AR055: 4, AR293: 4, AR250: 4, AR199: 4, AR247: 4, AR170: 4, AR188: 4, AR181: 4, AR185: 4, AR226: 4, AR261: 4, AR269: 4, AR089: 4, AR272: 4, AR308: 4, AR290: 4, AR285: 4, AR315: 4, AR195: 4, AR254: 4, AR284: 4, AR193: 4, AR295: 4, AR268: 3, AR258: 3, AR236: 3, AR243: 3, AR212: 3, AR234: 3, AR253: 3, AR190: 3, AR316: 3, AR298: 3, AR235: 3, AR286: 3, AR291: 3, AR179: 3, AR262: 3, AR217: 3, AR294: 3, AR282: 3, AR314: 3, AR104: 3, AR246: 3, AR257: 3, AR237: 3, AR249: 3, AR168: 3, AR203: 3, AR233: 3, AR248: 3, AR280: 3, AR255: 3, AR180: 3, AR259: 3, AR277: 3, AR230: 3, AR267: 3, AR297: 3, AR201: 3, AR207: 3, AR231: 3, AR216: 2, AR223: 2, AR289: 2, AR171: 2, AR288: 2, AR221: 2, AR287: 2, AR060: 2, AR227: 2, AR225: 2, AR211: 2, AR176: 2, AR239: 2, AR222: 2, AR210: 2, AR232: 2, AR256: 1, AR260: 1, AR263: 1, AR283: 1, AR194: 1, AR061: 1, AR228: 1, L0766: 3, L0764: 2, L0771: 2, L0439: 2, L0731: 2, H0739: 1, H0747: 1, H0749: 1, H0415: 1, H0057: 1, L0006: 1, L0598: 1, L0800: 1, L0768: 1, L0794: 1, L0803: 1, L0774: 1, L0807: 1, L0783: 1, L0519: 1, L0664: 1, L4560: 1, L0352: 1, H0522: 1, L0748: 1, L0747: 1, L0749: 1 and L0756: 1.</p>
119	HDPND46	637586	128	<p>AR252: 7, AR170: 6, AR223: 6, AR207: 6, AR311: 6, AR165: 6, AR263: 5, AR162: 5, AR163: 5, AR164: 5, AR214: 5, AR264: 5, AR195: 5, AR161: 5, AR212: 5, AR308: 5, AR225: 4, AR166: 4, AR242: 4, AR250: 4, AR053: 4, AR217: 4, AR224: 4, AR193: 4, AR169: 3, AR272: 3, AR222: 3, AR216: 3, AR235: 3, AR312: 3, AR089: 3, AR282: 3, AR309: 3, AR172: 3, AR197: 3, AR265: 3, AR180: 3, AR313: 3, AR261: 3, AR221: 3, AR168: 3, AR205: 3, AR277: 3, AR241: 3, AR297: 3, AR274: 3, AR213: 3, AR199: 3, AR181: 3, AR196: 3, AR201: 3, AR245: 2, AR253: 2, AR198: 2, AR275: 2, AR288: 2, AR174: 2, AR247: 2, AR206: 2, AR215: 2, AR176: 2, AR271: 2, AR175: 2, AR178: 2, AR246: 2, AR188: 2, AR300: 2, AR200: 2, AR203: 2, AR033: 2, AR096: 2, AR104: 2, AR310: 2, AR296: 2, AR060: 2, AR257: 2, AR295: 2, AR286: 2, AR189: 2, AR287: 2, AR204: 2, AR191: 2, AR262: 2, AR270: 2, AR183: 2, AR273: 2, AR239: 2, AR210: 2, AR269: 2, AR240: 2, AR192: 2, AR238: 2, AR316: 2, AR185: 2, AR291: 2, AR173: 2, AR243: 2, AR229: 2, AR299: 2, AR285: 2, AR236: 2, AR266: 2, AR190: 2, AR179: 1, AR293: 1, AR177: 1, AR283: 1, AR039: 1, AR268: 1, AR255: 1, AR290: 1, AR234: 1, AR061: 1, AR228: 1, AR232: 1, AR231: 1, AR237: 1, AR258: 1, AR267: 1, AR294: 1, AR182: 1, AR227: 1, H0522: 2 and L0055: 1.</p>
119	HDPND46	897276	129	<p>AR281: 16, AR280: 13, AR315: 12, AR310: 12, AR265: 11, AR314: 10, AR202: 10, AR194: 10, AR052: 8, AR206: 7, AR263: 7, AR295: 6, AR292: 6, AR248: 6, AR313: 6, AR033: 6, AR246: 6, AR251: 6, AR282: 5, AR283: 5, AR096: 5, AR247: 5, AR244: 5, AR249: 5, AR312: 5, AR241: 4, AR299: 4, AR218: 4, AR213: 4, AR227: 4, AR238: 4, AR294: 4, AR177: 4, AR277: 4, AR259: 4, AR198: 4, AR300: 4, AR219: 4, AR205: 4, AR309: 4, AR183: 4, AR232: 4, AR215: 3, AR039: 3, AR273: 3, AR053: 3, AR231: 3, AR061: 3, AR262: 3, AR293: 3, AR055: 3, AR229: 3, AR089: 3, AR274: 3, AR271: 3, AR284: 3, AR175: 3, AR237: 3, AR243: 3, AR184: 3, AR256: 3, AR298: 3, AR185: 3, AR253: 3, AR182: 2, AR204: 2, AR316: 2, AR186: 2, AR234: 2, AR250: 2, AR270: 2, AR267: 2, AR233: 2, AR192: 2, AR268: 2, AR285: 2, AR104: 2, AR266: 2, AR258: 2, AR214: 2, AR286: 2, AR172: 2, AR289: 2, AR290: 2, AR275: 2, AR193: 2, AR240: 2, AR217: 2, AR060: 1, AR296: 1, AR291: 1, AR179: 1, AR269: 1, AR201: 1, AR255: 1, L0740: 9, L0731: 9, L0803: 8, AR217: 2, AR060: 1, AR296: 1, AR291: 1, AR179: 1, AR269: 1, AR201: 1, AR255: 1, L0740: 9, L0731: 9, L0803: 8.</p>

120	HDPOH06	683371	130	<p>             H0436: 6, L0756: 6, L0805: 5, L0751: 5, L0754: 5, L0783: 4, L0747: 4, L0749: 4, L0777: 4, L0752: 4, H0556: 3, H0013: 3, L0771: 3, L0794: 3, L0774: 3, L0775: 3, L0809: 3, L0665: 3, L0757: 3, L0759: 3, L0599: 3, H0543: 3, H0422: 3, H0341: 2, L3659: 2, L0005: 2, S0046: 2, H0586: 2, H0427: 2, S0280: 2, H0553: 2, H0040: 2, H0551: 2, T0042: 2, L0770: 2, L0769: 2, L0764: 2, L0766: 2, L0790: 2, H0144: 2, L0438: 2, H0547: 2, S0406: 2, L0439: 2, L0750: 2, L0779: 2, L0581: 2, H0685: 1, S0040: 1, H0717: 1, L0002: 1, S0418: 1, S0354: 1, S0358: 1, S0376: 1, H0733: 1, S0045: 1, S0222: 1, H0333: 1, H0331: 1, H0492: 1, S0010: 1, H0052: 1, T0110: 1, H0327: 1, H0530: 1, H0545: 1, L0471: 1, H0620: 1, H0015: 1, H0373: 1, S0003: 1, S0214: 1, H0428: 1, H0039: 1, H0316: 1, H0591: 1, H0264: 1, S0112: 1, H0494: 1, H0560: 1, H0745: 1, L0065: 1, H0509: 1, H0646: 1, S0144: 1, S0422: 1, H0529: 1, H0026: 1, L0372: 1, L0641: 1, L0643: 1, L0521: 1, L0662: 1, L0768: 1, L0804: 1, L0776: 1, L0655: 1, L0659: 1, L5622: 1, L0791: 1, L0663: 1, H0435: 1, H0539: 1, S0152: 1, H0522: 1, H0696: 1, L0748: 1, L0758: 1, H0343: 1, S0436: 1, L0589: 1, S0026: 1, H0136: 1, H0216: 1 and H0506: 1.              AR272: 69, AR212: 53, AR214: 43, AR311: 39, AR274: 36, AR245: 35, AR165: 33, AR216: 32, AR308: 32, AR166: 31, AR161: 30, AR162: 30, AR217: 29, AR264: 29, AR163: 29, AR222: 28, AR164: 28, AR215: 27, AR309: 27, AR171: 26, AR223: 25, AR053: 25, AR252: 23, AR224: 23, AR168: 23, AR174: 22, AR225: 21, AR169: 21, AR205: 21, AR213: 21, AR195: 21, AR312: 20, AR197: 20, AR172: 19, AR263: 18, AR275: 18, AR247: 17, AR254: 17, AR221: 17, AR170: 17, AR313: 15, AR185: 15, AR189: 15, AR199: 15, AR236: 15, AR188: 14, AR242: 14, AR201: 14, AR250: 13, AR246: 13, AR193: 13, AR288: 12, AR190: 12, AR297: 11, AR230: 11, AR179: 11, AR253: 11, AR096: 10, AR243: 10, AR240: 10, AR239: 10, AR262: 9, AR177: 9, AR089: 9, AR300: 9, AR255: 9, AR194: 9, AR287: 9, AR290: 9, AR060: 9, AR173: 9, AR291: 9, AR238: 9, AR257: 8, AR271: 8, AR178: 8, AR296: 8, AR200: 8, AR232: 8, AR204: 8, AR289: 8, AR299: 8, AR295: 8, AR293: 8, AR231: 8, AR261: 8, AR282: 8, AR316: 8, AR234: 8, AR265: 8, AR285: 7, AR191: 7, AR226: 7, AR277: 7, AR181: 7, AR233: 7, AR061: 7, AR180: 6, AR198: 6, AR192: 6, AR237: 6, AR210: 6, AR283: 6, AR270: 6, AR039: 6, AR228: 6, AR207: 6, AR294: 6, AR280: 6, AR269: 6, AR229: 5, AR186: 5, AR315: 5, AR266: 5, AR183: 5, AR033: 5, AR267: 5, AR268: 5, AR104: 5, AR211: 5, AR286: 5, AR176: 5, AR227: 5, AR298: 4, AR175: 4, AR182: 4, AR196: 4, AR258: 4, AR281: 4, AR292: 4, AR219: 3, AR310: 3, AR260: 3, AR218: 3, AR052: 3, AR284: 3, AR273: 2, AR256: 2, AR202: 2, AR055: 2, AR314: 2, AR259: 1, AR235: 1, AR206: 1, L0748: 4, L0774: 3, H0046: 2, L0662: 2, L0803: 2, L0666: 2, L0749: 2, L3643: 1, H0728: 1, H0431: 1, H0318: 1, H0024: 1, S0318: 1, H0087: 1, S0344: 1, L0638: 1, L0637: 1, L0775: 1, L0659: 1, L0783: 1, L2259: 1, H0521: 1, H0522: 1, L0777: 1, L0731: 1, L0599: 1 and L0608: 1.           </p>
121	HDPOZ56	I352319	131	<p>             AR248: 20, AR253: 20, AR281: 16, AR244: 14, AR273: 13, AR202: 12, AR315: 12, AR310: 11, AR263: 11, AR224: 10, AR280: 10, AR194: 9, AR284: 9, AR223: 9, AR251: 9, AR165: 9, AR215: 9, AR265: 9, AR206: 9, AR198: 9, AR311: 9, AR164: 9, AR221: 9, AR249: 9, AR264: 8, AR166: 8, AR172: 8, AR222: 8, AR289: 8, AR212: 8, AR171: 8, AR272: 8, AR161: 8, AR225: 8, AR235: 8, AR266: 8, AR207: 8, AR162: 8, AR214: 8, AR168: 7, AR205: 7, AR216: 7, AR163: 7, AR217: 7, AR246: 7, AR052: 7, AR283: 7, AR169: 7, AR192: 7, AR242: 7, AR282: 7, AR053: 7, AR295: 7, AR312: 7, AR291: 7, AR285: 7, AR274: 7, AR213: 7, AR308: 6, AR268: 6, AR238: 6, AR261: 6, AR184: 6, AR298: 6, AR250: 6, AR288: 6, AR183: 6, AR239: 6, AR292: 6, AR033: 6, AR232: 6, AR290: 6, AR219: 6, AR197: 6, AR286: 6, AR243: 6, AR270: 6, AR269: 6, AR309: 6, AR287: 6, AR180: 6, AR277: 5, AR196: 5, AR271: 5, AR297: 5, AR314: 5, AR275: 5, AR204: 5, AR176: 5, AR254: 5, AR195: 5, AR299: 5, AR182: 5, AR170: 5, AR237: 5, AR210: 5, AR227: 5,           </p>

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	HDPOZ56	743479	687	
122	HDPSP54	744440	132	AR263: 53, AR207: 53, AR214: 51, AR169: 41, AR224: 40, AR222: 38, AR223: 37, AR195: 36, AR235: 32, AR217: 31, AR212: 31, AR168: 30, AR172: 30, AR311: 29, AR053: 28, AR192: 28, AR196: 28, AR171: 27, AR198: 27, AR213: 27, AR221: 27, AR161: 26, AR264: 26, AR252: 26, AR162: 25, AR170: 25, AR210: 25, AR245: 24, AR033: 23, AR225: 23, AR216: 23, AR163: 22, AR089: 22, AR261: 22, AR215: 21, AR271: 21, AR177: 21, AR181: 21, AR104: 21, AR295: 20, AR218: 20, AR236: 19, AR193: 19, AR191: 19, AR211: 19, AR197: 18, AR185: 18, AR055: 18, AR219: 18, AR201: 18, AR240: 18, AR165: 17, AR316: 17, AR299: 17, AR164: 17, AR060: 17, AR253: 17, AR253: 17, AR174: 16, AR242: 16, AR288: 16, AR199: 16, AR205: 16, AR246: 15, AR282: 15, AR039: 15, AR238: 15, AR308: 15, AR229: 15, AR175: 14, AR188: 14, AR285: 14, AR297: 14, AR254: 14, AR189: 14, AR232: 14, AR277: 13, AR300: 13, AR287: 13, AR243: 13, AR230: 13, AR312: 13, AR291: 13, AR286: 12, AR204: 12, AR250: 12, AR226: 12, AR173: 12, AR200: 12, AR239: 12, AR176: 12, AR274: 11, AR296: 11, AR096: 11, AR309: 11, AR203: 11, AR231: 11, AR270: 11, AR247: 11, AR293: 11, AR190: 11, AR283: 10, AR258: 10, AR267: 10, AR234: 10, AR289: 10, AR262: 10, AR178: 10, AR268: 10, AR227: 10, AR313: 10, AR180: 10, AR237: 10, AR179: 9, AR257: 9, AR182: 9, AR269: 9, AR255: 9, AR233: 9, AR260: 9, AR061: 9, AR183: 9, AR290: 8, AR275: 8, AR272: 8, AR266: 8, AR294: 7, AR256: 7, AR228: 6, L0740: 8, L0662: 3, L0659: 3, L0663: 3, S0422: 2, L0646: 2, L0766: 2, L0439: 2, L0779: 2, H0171: 1, S0624: 1, S0110: 1, S0360: 1, H0411: 1, H0455: 1, S0474: 1, H0510: 1, S0438: 1, L0637: 1, L5565: 1, L0771: 1, L0773: 1, L0794: 1, L0804: 1, L0787: 1, L0665: 1, L0438: 1, H0521: 1, S0406: 1, L0754: 1, L0755: 1 and L0758: 1.
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123	HDFTD15	692917	133	AR214: 32, AR223: 30, AR222: 27, AR224: 27, AR225: 24, AR169: 24, AR165: 22, AR164: 22, AR221: 22, AR215: 22, AR212: 22, AR195: 21, AR308: 21, AR217: 21, AR170: 20, AR172: 20, AR166: 20, AR168: 20, AR171: 19, AR216: 17, AR264: 16, AR162: 15, AR207: 15, AR161: 15, AR193: 15, AR163: 15, AR235: 15, AR311: 14, AR196: 14, AR250: 13, AR173: 13, AR245: 12, AR261: 12, AR242: 12, AR297: 12, AR288: 12, AR210: 12, AR199: 11, AR236: 11, AR263: 11, AR254: 10, AR191: 10, AR181: 10, AR312: 10, AR247: 10, AR197: 10, AR287: 10, AR189: 10, AR188: 10, AR252: 9, AR255: 9, AR174: 9, AR313: 9, AR053: 9, AR178: 9, AR190: 9, AR200: 9, AR201: 9, AR176: 9, AR257: 8, AR253: 8, AR240: 8, AR230: 8, AR269: 8, AR272: 8, AR211: 8, AR192: 8, AR262: 8, AR229: 8, AR033: 8, AR180: 8, AR309: 8, AR239: 8, AR238: 7, AR291: 7, AR203: 7, AR260: 7, AR285: 7, AR270: 7, AR295: 6, AR271: 6, AR293: 6, AR089: 6, AR226: 6, AR183: 6, AR177: 6, AR266: 6, AR175: 6, AR296: 6, AR198: 6, AR277: 5, AR251: 5,

124	HDPTK41	744824	134	<p>AR205: 5, AR234: 5, AR282: 5, AR290: 5, AR300: 5, AR231: 5, AR286: 5, AR299: 5, AR274: 5, AR232: 5, AR316: 5, AR268: 5, AR289: 5, AR179: 5, AR275: 5, AR052: 5, AR228: 5, AR246: 5, AR182: 4, AR227: 4, AR060: 4, AR204: 4, AR185: 4, AR267: 4, AR256: 4, AR096: 4, AR294: 4, AR283: 4, AR237: 4, AR233: 4, AR219: 3, AR249: 3, AR218: 3, AR186: 2, AR039: 2, AR310: 2, AR206: 2, AR104: 2, AR055: 2, AR292: 2, AR061: 2, AR298: 2, AR259: 1, AR284: 1, AR194: 1, H0521: 1</p> <p>AR250: 39, AR233: 27, AR248: 25, AR254: 19, AR249: 15, AR217: 12, AR215: 11, AR169: 11, AR311: 10, AR264: 10, AR223: 10, AR224: 10, AR060: 10, AR222: 10, AR214: 9, AR225: 9, AR207: 9, AR171: 9, AR165: 9, AR235: 8, AR216: 8, AR172: 8, AR221: 8, AR164: 8, AR252: 8, AR168: 8, AR263: 8, AR268: 8, AR265: 7, AR263: 7, AR290: 7, AR170: 7, AR096: 7, AR245: 7, AR182: 7, AR161: 7, AR163: 7, AR162: 7, AR212: 7, AR196: 7, AR240: 7, AR242: 6, AR213: 6, AR261: 6, AR195: 6, AR194: 6, AR270: 6, AR173: 6, AR269: 6, AR246: 6, AR251: 6, AR308: 6, AR288: 6, AR181: 5, AR295: 5, AR190: 5, AR193: 5, AR192: 5, AR202: 5, AR053: 5, AR201: 5, AR205: 5, AR211: 5, AR189: 5, AR176: 5, AR241: 5, AR229: 5, AR244: 5, AR200: 5, AR257: 5, AR191: 5, AR315: 5, AR299: 5, AR183: 5, AR309: 4, AR236: 4, AR033: 4, AR267: 4, AR174: 4, AR310: 4, AR178: 4, AR198: 4, AR188: 4, AR204: 4, AR297: 4, AR175: 4, AR255: 4, AR199: 4, AR312: 4, AR177: 4, AR210: 4, AR272: 4, AR282: 4, AR271: 4, AR287: 4, AR243: 4, AR286: 4, AR203: 4, AR285: 4, AR039: 4, AR104: 4, AR266: 4, AR234: 3, AR180: 3, AR089: 3, AR238: 3, AR262: 3, AR316: 3, AR206: 3, AR247: 3, AR277: 3, AR313: 3, AR294: 3, AR052: 3, AR197: 3, AR230: 3, AR293: 3, AR292: 3, AR258: 3, AR296: 3, AR239: 3, AR219: 3, AR291: 3, AR300: 3, AR289: 3, AR275: 3, AR283: 3, AR280: 3, AR226: 2, AR274: 2, AR231: 2, AR284: 2, AR227: 2, AR185: 2, AR237: 2, AR184: 2, AR179: 2, AR186: 2, AR228: 2, AR233: 2, AR260: 2, AR232: 2, AR281: 2, AR298: 2, AR256: 2, AR061: 2, AR273: 2, AR055: 2, AR314: 2, L0599: 4, T0049: 3, L0659: 3, L0748: 3, L0755: 3, H0038: 2, S0142: 2, S0344: 2, L0770: 2, L0662: 2, L0775: 2, H0521: 2, L0752: 2, L0759: 2, L0588: 2, H0650: 1, H0254: 1, H0402: 1, H0580: 1, S0474: 1, H0581: 1, H0310: 1, S0294: 1, S0144: 1, S0426: 1, L0644: 1, L0768: 1, L0766: 1, L0774: 1, L0790: 1, L0666: 1, L0665: 1, H0539: 1, S0406: 1, L0744: 1, L0779: 1, L0777: 1, H0445: 1 and S0276: 1.</p>
125	HDPUG50	684120	135	<p>AR273: 7, AR269: 6, AR183: 5, AR270: 5, AR265: 4, AR264: 4, AR272: 4, AR309: 4, AR052: 4, AR312: 4, AR053: 4, AR290: 4, AR291: 4, AR176: 4, AR194: 4, AR162: 4, AR161: 4, AR215: 4, AR217: 4, AR238: 4, AR165: 4, AR193: 4, AR163: 4, AR314: 4, AR271: 4, AR164: 4, AR274: 4, AR186: 4, AR206: 4, AR173: 3, AR166: 3, AR311: 3, AR212: 3, AR286: 3, AR249: 3, AR268: 3, AR308: 3, AR199: 3, AR202: 3, AR182: 3, AR298: 3, AR284: 3, AR280: 3, AR169: 3, AR310: 3, AR225: 3, AR178: 3, AR267: 3, AR275: 3, AR170: 3, AR292: 3, AR213: 2, AR168: 2, AR201: 2, AR196: 2, AR191: 2, AR177: 2, AR188: 2, AR246: 2, AR219: 2, AR189: 2, AR175: 2, AR263: 2, AR185: 2, AR204: 2, AR184: 2, AR198: 2, AR171: 2, AR285: 2, AR266: 2, AR192: 2, AR313: 2, AR181: 2, AR282: 2, AR262: 2, AR293: 2, AR257: 2, AR277: 2, AR174: 2, AR255: 2, AR089: 2, AR281: 2, AR210: 2, AR200: 2, AR315: 2, AR227: 2, AR203: 2, AR296: 2, AR253: 2, AR247: 2, AR190: 2, AR239: 2, AR205: 2, AR211: 2, AR223: 2, AR231: 2, AR294: 2, AR295: 2, AR033: 2, AR316: 2, AR229: 2, AR179: 2, AR224: 2, AR216: 1, AR299: 1, AR259: 1, AR096: 1, AR195: 1, AR287: 1, AR218: 1, AR234: 1, AR230: 1, AR289: 1, AR300: 1, AR061: 1, AR061: 1, AR104: 1, AR261: 1, AR288: 1, AR060: 1, AR237: 1, AR233: 1, AR240: 1, H0659: 5, L0740: 5, L0662: 4, L0771: 3, H0547: 3, H0521: 3, L0759: 3, L0362: 3, H0013: 2, H0597: 2, H0046: 2, H0083: 2, S0214: 2, H0674: 2, H0494: 2, L0517: 2, H0682: 2, L0747: 2, L0779: 2, S0434: 2, H0685: 2.</p>

126	HDPUH26	866433	136	<p>1, H0583: 1, H0661: 1, H0638: 1, S0420: 1, S0360: 1, H0580: 1, H0438: 1, H0497: 1, H0599: 1, S0010: 1, H0581: 1, H0545: 1, H0457: 1, H0563: 1, L0163: 1, L0055: 1, H0673: 1, H0212: 1, H0591: 1, H0038: 1, H0616: 1, H0488: 1, S0142: 1, S0344: 1, L0763: 1, L0770: 1, L0767: 1, L0766: 1, L0776: 1, L0659: 1, L0782: 1, L0545: 1, H0144: 1, H0672: 1, S0152: 1, S0406: 1, H0627: 1, S0390: 1, L0748: 1, L0777: 1, L0758: 1, S0026: 1, H0665: 1 and H0543: 1.</p> <p>AR177: 16, AR176: 15, AR174: 15, AR175: 14, AR235: 13, AR273: 12, AR183: 12, AR191: 11, AR251: 11, AR261: 11, AR182: 10, AR170: 10, AR310: 9, AR190: 9, AR171: 9, AR189: 9, AR173: 9, AR195: 9, AR214: 8, AR224: 8, AR265: 8, AR215: 8, AR297: 8, AR222: 7, AR197: 7, AR243: 7, AR269: 7, AR221: 7, AR288: 7, AR165: 7, AR217: 7, AR285: 7, AR188: 7, AR202: 7, AR164: 7, AR263: 7, AR216: 7, AR287: 7, AR161: 7, AR162: 7, AR291: 7, AR168: 7, AR172: 6, AR163: 6, AR166: 6, AR270: 6, AR292: 6, AR223: 6, AR180: 6, AR295: 6, AR284: 6, AR245: 6, AR053: 6, AR207: 6, AR315: 6, AR271: 6, AR298: 5, AR268: 5, AR196: 5, AR255: 5, AR311: 5, AR194: 5, AR211: 5, AR201: 5, AR236: 5, AR226: 5, AR264: 5, AR238: 5, AR312: 5, AR198: 5, AR232: 5, AR181: 5, AR262: 4, AR257: 4, AR178: 4, AR249: 4, AR282: 4, AR213: 4, AR199: 4, AR206: 4, AR252: 4, AR192: 4, AR247: 4, AR193: 4, AR308: 4, AR239: 4, AR205: 4, AR212: 4, AR274: 4, AR203: 4, AR225: 4, AR272: 4, AR242: 4, AR309: 4, AR266: 4, AR286: 4, AR296: 4, AR289: 3, AR267: 3, AR234: 3, AR185: 3, AR240: 3, AR237: 3, AR231: 3, AR227: 3, AR250: 3, AR259: 3, AR089: 3, AR210: 3, AR033: 3, AR248: 3, AR314: 3, AR293: 3, AR246: 3, AR290: 3, AR294: 3, AR060: 3, AR316: 3, AR230: 3, AR039: 3, AR258: 3, AR280: 3, AR275: 3, AR200: 3, AR233: 3, AR229: 3, AR283: 2, AR061: 2, AR253: 2, AR277: 2, AR313: 2, AR228: 2, AR281: 2, AR300: 2, AR096: 2, AR179: 2, AR256: 2, AR260: 2, AR104: 2, AR219: 2, AR244: 2, AR204: 2, AR186: 1, AR218: 1, AR052: 1, AR259: 1, AR055: 1, S0358: 4, S0280: 3, H0717: 2, H0370: 2, H0510: 2, H0556: 1, H0716: 1, S0442: 1, S0354: 1, S0476: 1, H0393: 1, H0549: 1, H0586: 1, T0082: 1, H0036: 1, H0590: 1, H0596: 1, H0050: 1, H0628: 1, H0264: 1, H0494: 1, H0509: 1, L2257: 1, L2654: 1, H0521: 1, L0741: 1, L0439: 1, H0445: 1, S0436: 1, L0605: 1, S0011: 1 and H0665: 1.</p>
127	HDPWU68	812737	137	<p>AR253: 15, AR052: 14, AR213: 11, AR184: 11, AR230: 11, AR228: 9, AR170: 9, AR250: 8, AR168: 8, AR254: 8, AR225: 6, AR297: 6, AR053: 6, AR251: 5, AR267: 5, AR248: 5, AR268: 5, AR221: 5, AR096: 5, AR214: 5, AR238: 5, AR178: 5, AR249: 5, AR216: 5, AR173: 5, AR239: 5, AR236: 5, AR166: 5, AR182: 4, AR161: 4, AR162: 4, AR217: 4, AR269: 4, AR282: 4, AR163: 4, AR224: 4, AR222: 4, AR237: 4, AR296: 4, AR257: 4, AR263: 4, AR244: 4, AR227: 4, AR258: 4, AR252: 4, AR291: 4, AR229: 4, AR219: 4, AR287: 4, AR290: 4, AR275: 4, AR264: 4, AR183: 4, AR175: 4, AR223: 4, AR199: 4, AR308: 4, AR171: 3, AR194: 3, AR246: 3, AR277: 3, AR260: 3, AR288: 3, AR240: 3, AR274: 3, AR191: 3, AR284: 3, AR243: 3, AR312: 3, AR293: 3, AR179: 3, AR233: 3, AR300: 3, AR261: 3, AR218: 3, AR165: 3, AR061: 3, AR231: 3, AR033: 3, AR298: 3, AR316: 3, AR164: 3, AR181: 3, AR255: 3, AR270: 3, AR189: 3, AR313: 3, AR309: 3, AR234: 2, AR186: 2, AR247: 2, AR195: 2, AR285: 2, AR232: 2, AR292: 2, AR185: 2, AR226: 2, AR180: 2, AR299: 2, AR289: 2, AR271: 2, AR193: 2, AR089: 2, AR203: 2, AR311: 2, AR060: 2, AR172: 2, AR310: 2, AR215: 2, AR177: 2, AR266: 2, AR262: 2, AR272: 2, AR188: 2, AR196: 2, AR169: 1, AR162: 1, AR210: 1, AR035: 1, AR283: 1, AR190: 1, AR241: 1, AR295: 1, AR286: 1, AR201: 1, AR294: 1, AR104: 1, AR256: 1, AR205: 1, AR039: 1, H0677: 47, H0521: 14, H0295: 3, H0587: 3, H0556: 2, H0656: 2, H0638: 2, H0411: 2, S0002: 2, L0766: 2, L0776: 2, L0659: 2, L0809: 2, H0670: 2, H0522: 2, S0404: 2, L0743: 2, L0744: 2, L0740: 2, L0731: 2, S0134: 1, H0657: 1, H0254: 1, S0476: 1, S0278: 1, H0486: 1, H0575: 1, H0606: 1, H0135: 1, H0561: 1, S0438: 1, L0761: 1, L0768: 1, L0655: 1, L2261: 1, S0374: 1, H0690: 1, H0435: 1, H0575: 1, H0606: 1, H0135: 1, H0561: 1, S0438: 1, L0761: 1, L0768: 1, L0655: 1, L2261: 1, S0374: 1, H0690: 1, H0435: 1.</p>

128	HDPVH60	796865	138	<p>H0658: 1, H0696: 1, H0678: 1, L0779: 1, L0752: 1, H0445: 1, S0434: 1 and S0436: 1.</p> <p>AR263: 12, AR265: 9, AR311: 8, AR312: 8, AR264: 7, AR308: 7, AR161: 7, AR052: 7, AR163: 7, AR195: 7, AR212: 7, AR165: 6, AR197: 6, AR053: 6, AR242: 6, AR193: 6, AR166: 6, AR203: 6, AR245: 5, AR180: 5, AR191: 5, AR310: 5, AR096: 5, AR196: 5, AR287: 5, AR199: 5, AR188: 5, AR253: 4, AR213: 4, AR309: 4, AR174: 4, AR262: 4, AR200: 4, AR257: 4, AR201: 4, AR190: 4, AR183: 4, AR288: 4, AR178: 4, AR239: 4, AR272: 4, AR236: 4, AR261: 4, AR204: 4, AR282: 4, AR255: 4, AR228: 4, AR275: 4, AR176: 4, AR244: 4, AR060: 4, AR297: 3, AR189: 3, AR249: 3, AR172: 3, AR233: 3, AR179: 3, AR175: 3, AR207: 3, AR177: 3, AR295: 3, AR039: 3, AR198: 3, AR229: 3, AR294: 3, AR173: 3, AR286: 3, AR254: 3, AR248: 3, AR230: 3, AR184: 3, AR227: 3, AR270: 3, AR293: 3, AR240: 3, AR182: 3, AR313: 3, AR246: 3, AR258: 3, AR033: 2, AR234: 2, AR316: 2, AR274: 2, AR089: 2, AR267: 2, AR226: 2, AR185: 2, AR300: 2, AR269: 2, AR192: 2, AR285: 2, AR232: 2, AR299: 2, AR205: 2, AR268: 2, AR247: 2, AR104: 2, AR237: 2, AR271: 2, AR221: 2, AR290: 2, AR061: 2, AR231: 2, AR181: 2, AR252: 2, AR260: 2, AR277: 2, AR281: 2, AR289: 2, AR243: 1, AR266: 1, AR055: 1, AR291: 1, AR296: 1, AR168: 1, AR211: 1, AR217: 1, AR235: 1, AR280: 1, AR292: 1, AR251: 1, AR219: 1, AR194: 1, H0457: 6, H0436: 4, L0761: 3, L0655: 3, L0749: 3, S0276: 3, H0716: 2, H0657: 2, H0492: 2, H0069: 2, H0050: 2, H0271: 2, L0764: 2, L0771: 2, L0766: 2, L0774: 2, L0775: 2, H0521: 2, L0751: 2, L0777: 2, H0423: 2, S0114: 1, S0134: 1, H0650: 1, L0808: 1, H0254: 1, S0376: 1, S0360: 1, H0580: 1, H0600: 1, H0586: 1, H0587: 1, H0486: 1, S0474: 1, H0416: 1, H0687: 1, H0039: 1, H0606: 1, H0591: 1, H0040: 1, H0488: 1, H0641: 1, L0763: 1, L0794: 1, L0806: 1, L0661: 1, L0659: 1, L0665: 1, H0144: 1, H0697: 1, S0380: 1, H0522: 1, H0576: 1, H0478: 1, L0747: 1, L0779: 1, S0260: 1, L0599: 1, H0543: 1 and H0506: 1.</p> <p>AR169: 4, AR215: 4, AR192: 3, AR225: 3, AR183: 3, AR313: 2, AR216: 2, AR180: 2, AR271: 2, AR214: 2, AR264: 2, AR188: 2, AR213: 2, AR309: 2, AR232: 2, AR230: 2, AR257: 2, AR311: 1, AR165: 1, AR164: 1, AR166: 1, AR196: 1, AR293: 1, AR193: 1, AR290: 1, AR172: 1, AR277: 1, AR266: 1, AR312: 1, AR240: 1, AR177: 1, AR200: 1, AR282: 1, AR254: 1, AR226: 1, AR252: 1, H0521: 27, S0212: 3, S0354: 2, H0581: 2, H0087: 2, S0386: 2, L0775: 2, L0665: 2, H0670: 2, H0522: 2, S0028: 2, L0756: 2, L0777: 2, L0757: 2, H0713: 1, H0484: 1, H0255: 1, S0408: 1, H0645: 1, H0619: 1, H0393: 1, S0278: 1, H0587: 1, S0280: 1, H0575: 1, T0082: 1, H0327: 1, H0457: 1, H0594: 1, H0428: 1, H0124: 1, H0100: 1, H0509: 1, L0640: 1, L0763: 1, L0770: 1, L0646: 1, L0662: 1, L0776: 1, L0661: 1, L0783: 1, L0809: 1, L0666: 1, L0709: 1, L0710: 1, L2262: 1, L2654: 1, H0698: 1, H0672: 1, S0380: 1, L0758: 1, S0436: 1, L0608: 1, H0653: 1 and H0506: 1.</p>
129	HDPVW11	1036997	139	<p>AR169: 4, AR215: 4, AR192: 3, AR225: 3, AR183: 3, AR313: 2, AR216: 2, AR180: 2, AR271: 2, AR214: 2, AR264: 2, AR188: 2, AR213: 2, AR309: 2, AR232: 2, AR230: 2, AR257: 2, AR311: 1, AR165: 1, AR164: 1, AR166: 1, AR196: 1, AR293: 1, AR193: 1, AR290: 1, AR172: 1, AR277: 1, AR266: 1, AR312: 1, AR240: 1, AR177: 1, AR200: 1, AR282: 1, AR254: 1, AR226: 1, AR252: 1, H0521: 27, S0212: 3, S0354: 2, H0581: 2, H0087: 2, S0386: 2, L0775: 2, L0665: 2, H0670: 2, H0522: 2, S0028: 2, L0756: 2, L0777: 2, L0757: 2, H0713: 1, H0484: 1, H0255: 1, S0408: 1, H0645: 1, H0619: 1, H0393: 1, S0278: 1, H0587: 1, S0280: 1, H0575: 1, T0082: 1, H0327: 1, H0457: 1, H0594: 1, H0428: 1, H0124: 1, H0100: 1, H0509: 1, L0640: 1, L0763: 1, L0770: 1, L0646: 1, L0662: 1, L0776: 1, L0661: 1, L0783: 1, L0809: 1, L0666: 1, L0709: 1, L0710: 1, L2262: 1, L2654: 1, H0698: 1, H0672: 1, S0380: 1, L0758: 1, S0436: 1, L0608: 1, H0653: 1 and H0506: 1.</p>
130	HDPVW11	896530	689	
	HDPWN93	992925	140	<p>AR313: 5, AR089: 5, AR207: 5, AR096: 5, AR219: 5, AR277: 4, AR299: 4, AR162: 4, AR161: 4, AR165: 4, AR274: 4, AR104: 4, AR193: 4, AR164: 4, AR240: 4, AR166: 4, AR163: 4, AR264: 4, AR282: 4, AR250: 4, AR316: 4, AR218: 3, AR215: 3, AR185: 3, AR178: 3, AR196: 3, AR311: 3, AR216: 3, AR039: 3, AR300: 3, AR055: 3, AR225: 3, AR245: 3, AR312: 3, AR060: 3, AR291: 3, AR195: 3, AR188: 3, AR198: 3, AR269: 2, AR257: 2, AR308: 2, AR285: 2, AR270: 2, AR297: 2, AR242: 2, AR288: 2, AR180: 2, AR221: 2, AR223: 2, AR182: 2, AR266: 2, AR243: 2, AR201: 2, AR283: 2, AR213: 2, AR232: 2, AR200: 2, AR224: 2, AR212: 2, AR293: 2, AR173: 2, AR191: 2, AR262: 2, AR053: 2, AR229: 2, AR189: 2, AR275: 2, AR181: 2, AR203: 2, AR237: 2, AR217: 2, AR226: 2, AR205: 2, AR268: 2, AR287: 2, AR214: 2, AR255: 2, AR171: 2, AR290: 2, AR272: 2, AR286: 2, AR309: 2, AR174: 2, AR246: 2, AR271: 2, AR289: 2, AR227: 2.</p>

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	HDPWN93	905983	691	
131	HDPWU34	630354	141	AR281: 35, AR315: 23, AR280: 21, AR314: 18, AR263: 17, AR207: 16, AR214: 14, AR311: 14, AR222: 13, AR264: 13, AR224: 13, AR284: 13, AR172: 12, AR170: 12, AR215: 11, AR169: 11, AR223: 11, AR221: 11, AR217: 11, AR162: 11, AR196: 11, AR168: 11, AR165: 11, AR283: 11, AR166: 11, AR195: 11, AR033: 11, AR164: 11, AR161: 10, AR163: 10, AR212: 10, AR295: 10, AR265: 10, AR171: 10, AR252: 10, AR310: 10, AR235: 10, AR096: 10, AR177: 9, AR308: 9, AR292: 9, AR216: 9, AR213: 9, AR184: 9, AR225: 9, AR298: 9, AR277: 9, AR285: 9, AR232: 8, AR289: 8, AR299: 8, AR247: 8, AR250: 8, AR251: 8, AR210: 8, AR253: 8, AR183: 8, AR270: 8, AR291: 8, AR053: 8, AR300: 7, AR313: 7, AR268: 7, AR248: 7, AR245: 7, AR219: 7, AR218: 7, AR240: 7, AR261: 7, AR266: 7, AR312: 7, AR309: 7, AR241: 7, AR286: 7, AR193: 7, AR282: 7, AR197: 7, AR290: 7, AR296: 7, AR175: 6, AR288: 6, AR259: 6, AR238: 6, AR089: 6, AR229: 6, AR200: 6, AR055: 6, AR316: 6, AR226: 6, AR269: 6, AR249: 6, AR236: 6, AR052: 6, AR227: 6, AR211: 6, AR254: 5, AR176: 5, AR231: 5, AR174: 5, AR185: 5, AR182: 5, AR267: 5, AR294: 5, AR192: 5, AR188: 5, AR199: 5, AR189: 5, AR234: 5, AR242: 5, AR258: 5, AR181: 5, AR237: 5, AR180: 5, AR293: 5, AR173: 5, AR297: 5, AR256: 5, AR191: 4, AR201: 4, AR203: 4, AR178: 4, AR233: 4, AR271: 4, AR198: 4, AR275: 4, AR257: 4, AR104: 4, AR274: 4, AR061: 4, AR272: 3, AR287: 3, AR039: 3, AR179: 3, AR255: 3, AR230: 3, AR239: 3, AR262: 3, AR190: 3, AR060: 3, AR204: 3, AR260: 3, AR205: 3, AR246: 2, AR202: 2, AR243: 2, AR228: 2, AR244: 2, AR186: 1, S0278: 3, H0641: 3, S0142: 3, L0770: 3, H0521: 3, H0271: 2, L0794: 2, L0748: 2, L0777: 2, L0599: 2, H0583: 1, H0650: 1, H0657: 1, H0656: 1, H0663: 1, H0638: 1, S0358: 1, S0376: 1, H0545: 1, S0388: 1, H0594: 1, L2270: 1, S0144: 1, L0763: 1, L0646: 1, L0648: 1, L0767: 1, L0766: 1, L0650: 1, L0775: 1, L0787: 1, L0664: 1, S0216: 1, H0576: 1, H0727: 1, L0756: 1, L0757: 1, S0260: 1 and S0436: 1.
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132	HDQHD03	1309175	142	AR206: 6, AR263: 4, AR244: 3, AR273: 3, AR310: 2, AR215: 2, AR250: 2, AR169: 2, AR243: 2, AR171: 2, AR282: 2, AR216: 2, AR253: 2, AR285: 2, AR247: 2, AR183: 2, AR277: 2, AR060: 2, AR212: 1, AR217: 1, AR238: 1, AR312: 1, AR186: 1, AR271: 1, AR266: 1, AR055: 1, AR255: 1, AR262: 1, AR311: 1, AR289: 1, AR231: 1, AR296: 1, AR257: 1, AR290: 1, AR204: 1, AR096: 1, AR089: 1, AR227: 1, L0766: 5, L0779: 2, T0082: 1 and L0807: 1.
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133	HDTBD53	972757	143	AR242: 4, AR246: 4, AR250: 3, AR263: 3, AR195: 3, AR272: 3, AR264: 3, AR170: 3, AR282: 3, AR215: 3, AR163: 3, AR162: 3, AR235: 3, AR089: 3, AR198: 3, AR165: 3, AR161: 3, AR197: 2, AR266: 2, AR053: 2, AR169: 2, AR212: 2, AR205: 2, AR285: 2, AR243: 2, AR312: 2, AR240: 2, AR221: 2, AR296: 2, AR213: 2, AR178: 2, AR216: 2, AR261: 2, AR214: 2, AR299: 2, AR247: 2, AR060: 2, AR164: 2, AR267: 1, AR183: 1, AR271: 1, AR172: 1, AR286: 1, AR179: 1, AR166: 1, AR291: 1, AR311: 1, AR316: 1, AR288: 1, AR171: 1, AR188: 1, AR268: 1, AR269: 1, AR308: 1, AR173: 1, AR287: 1, AR033: 1, L0439: 17, L0731: 17, L0747: 16, L0766: 13, S0360: 8, L0770: 8, L0659: 8, L0754: 8, H0553: 7, L0663: 7, L0749: 7, L0758: 7, H0486: 6, S0192: 6, L0662: 5, L0105: 4, H0644: 4, L0438: 4, H0547: 4, L0748: 4, L0751: 4, L0752: 4, L0755: 4, L0599: 4, H0542: 4, H0556: 3, H0662: 3, S0420: 3, H0599: 3, H0050: 3, H0266: 3, H0622: 3, H0135: 3, H0551: 3, H0529: 3, L0783: 3, H0519: 3, H0670: 3, H0521: 3, H0555: 3, L0750: 3, H0717: 2, H0663: 2, H0638: 2, S0476: 2, H0592: 2, H0013: 2, H0598: 2, H0090: 2, H0038: 2, H0040: 2, H0494: 2, S0440: 2, S0344: 2, L0638: 2, L0761: 2, L0764: 2, L0649: 2, L0774: 2, L0775: 2, L0657: 2, L0787: 2, L0666: 2, H0144: 2, L0565: 2, H0659: 2, S0044: 2, L0759: 2, S0194: 2, H0422: 2, H0170: 1, S0040: 1, H0713: 1, T0049: 1, S0134: 1, S0110: 1, H0402: 1, S0356: 1, S0442: 1, S0376: 1, S0444: 1, S0410: 1, S0300: 1, H0369: 1, H0261: 1, H0549: 1, H0550: 1, S0222: 1, H0586: 1, H0587: 1, L0586: 1, T0060: 1, H0244: 1, S0280: 1, L0021: 1, H0025: 1, H0421: 1, H0309: 1, L0040: 1, H0544: 1, L0471: 1, H0024: 1, L0163: 1, S0388: 1, H0188: 1, H0687: 1, S0003: 1, H0615: 1, H0039: 1, H0030: 1, H0674: 1, H0212: 1, H0068: 1, S0366: 1, H0163: 1, H0591: 1, H0634: 1, H0616: 1, H0412: 1, H0413: 1, H0623: 1, H0561: 1, H0641: 1, H0647: 1, H0652: 1, S0144: 1, S0142: 1, S0002: 1, L0369: 1, L0769: 1, L5575: 1, L5565: 1, L3905: 1, L5566: 1, L0772: 1, L0800: 1, L0771: 1, L0521: 1, L0768: 1, L0381: 1, L0806: 1, L0654: 1, L0655: 1, L0636: 1, L0384: 1, L0809: 1, L0528: 1, L0788: 1, L0789: 1, S0126: 1, H0689: 1, H0682: 1, H0658: 1, H0648: 1, S0328: 1, H0539: 1, H0696: 1, S0406: 1, L0740: 1, L0757: 1, L0603: 1, H0665: 1, S0196: 1, H0423: 1 and S0460: 1.
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134	HDTBP04	1307742	144	
	HDTBP04	543618	695	
135	HDTDQ23	1306984	145	AR200: 16, AR311: 15, AR272: 13, AR264: 12, AR165: 11, AR164: 11, AR188: 11, AR312: 10, AR166: 10, AR211: 10, AR104: 10, AR282: 10, AR191: 10, AR246: 9, AR096: 9, AR210: 9, AR189: 9, AR162: 9, AR161: 9, AR163: 9, AR274: 9, AR196: 9, AR308: 8, AR174: 8, AR089: 8, AR240: 8, AR309: 7, AR175: 7, AR218: 7, AR219: 7, AR190: 7, AR295: 7, AR203: 7, AR316: 7, AR299: 7, AR313: 6, AR285: 6, AR247: 6, AR185: 6, AR275: 6, AR263: 6, AR183: 6, AR245: 6, AR060: 6, AR181: 6, AR212: 6, AR039: 6, AR053: 5, AR288: 5, AR269: 5, AR268: 5, AR243: 5, AR291: 5, AR290: 5, AR033: 5, AR173: 5, AR238: 5, AR267: 5, AR231: 5, AR176: 5, AR271: 5, AR300: 4, AR237: 4, AR205: 4, AR266: 4, AR177: 4, AR182: 4, AR223: 4, AR270: 4, AR296: 4, AR213: 4, AR277: 4, AR229: 4, AR178: 4, AR261: 4, AR171: 4, AR297: 4, AR195: 3, AR287: 3, AR239: 3, AR236: 3, AR230: 3, AR255: 3, AR226: 3, AR257: 3, AR286: 3, AR293: 3, AR258: 3, AR236: 3, AR193: 3, AR262: 3, AR168: 3, AR180: 3, AR252: 3, AR289: 3, AR221: 3, AR225: 3, AR250: 3, AR179: 3, AR294: 3, AR216: 2, AR201: 2, AR198: 2, AR233: 2, AR061: 2, AR172: 2, AR222: 2, AR055: 2, AR170: 2, AR215: 2, AR256: 2, AR228: 2, AR227: 2, AR214: 1, AR283: 1, AR197: 1, AR260: 1, AR235: 1, AR253: 1, L0659: 5, L0666: 4, L0665: 4, L2634: 3, L0471: 2, H0031: 2, L0646: 2, L0794: 2, L0766: 2, L0657: 2, H0265: 1, H0685: 1, L0785: 1, S0356: 1, S0376: 1, S0360: 1, H0742: 1, S0007: 1, H0747: 1, H0486: 1, L2540: 1, H0069: 1.

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	HDTQ23	751707	697		
136	HDTEK44	1025421	146		AR313: 60, AR163: 58, AR196: 54, AR264: 52, AR161: 50, AR162: 49, AR263: 42, AR165: 41, AR164: 39, AR229: 39, AR166: 39, AR240: 38, AR096: 37, AR089: 36, AR174: 35, AR247: 35, AR173: 34, AR242: 33, AR185: 33, AR177: 32, AR181: 32, AR234: 31, AR218: 30, AR300: 30, AR258: 28, AR308: 28, AR275: 27, AR262: 27, AR104: 27, AR192: 26, AR175: 26, AR179: 26, AR207: 25, AR236: 25, AR274: 25, AR235: 25, AR311: 24, AR312: 24, AR233: 23, AR293: 23, AR257: 23, AR053: 22, AR309: 22, AR261: 22, AR199: 22, AR316: 21, AR191: 21, AR277: 21, AR238: 21, AR230: 21, AR299: 21, AR213: 20, AR060: 20, AR226: 20, AR197: 20, AR180: 20, AR297: 19, AR200: 19, AR212: 19, AR193: 19, AR203: 18, AR271: 17, AR231: 17, AR219: 17, AR237: 16, AR295: 16, AR188: 16, AR178: 16, AR285: 16, AR282: 16, AR198: 16, AR245: 15, AR189: 15, AR039: 15, AR033: 15, AR204: 15, AR227: 15, AR228: 15, AR286: 15, AR195: 15, AR239: 14, AR294: 14, AR254: 14, AR255: 14, AR296: 14, AR183: 14, AR287: 13, AR269: 13, AR260: 13, AR270: 12, AR201: 12, AR288: 11, AR182: 11, AR291: 11, AR211: 11, AR252: 10, AR290: 10, AR250: 10, AR223: 10, AR253: 10, AR169: 10, AR170: 10, AR243: 10, AR224: 10, AR168: 10, AR214: 10, AR256: 10, AR272: 9, AR268: 9, AR246: 9, AR171: 9, AR283: 9, AR225: 9, AR172: 8, AR289: 8, AR205: 8, AR232: 8, AR222: 8, AR190: 8, AR176: 8, AR210: 8, AR217: 8, AR216: 8, AR267: 8, AR221: 7, AR215: 7, AR266: 5, AR055: 5, AR061: 5, L0809: 7, L0662: 4, L0794: 2, H0592: 1, H0586: 1, H0485: 1, H0486: 1, H0687: 1, L0648: 1, L0803: 1, L0375: 1, L0384: 1, L0663: 1, H0683: 1, L0439: 1 and L0747: 1.
	HDTEK44	890972	698		
	HDTEK44	904770	699		
	HDTEK44	902431	700		
137	HDTEN81	571078	147		AR282: 122, AR039: 29, AR300: 8, AR316: 4, AR055: 2, AR060: 2, AR313: 1, H0486: 8, S0328: 7, S0356: 5, L0655: 5, L0762: 3, L5574: 3, H0445: 3, L0794: 2, L0653: 2, S0330: 2, L0750: 2, L0808: 1, H0551: 1, L0761: 1, L5564: 1, L0606: 1, S0392: 1, L0747: 1 and S0384: 1.
138	HDTFE17	1043391	148		AR169: 12, AR224: 12, AR223: 11, AR210: 10, AR214: 10, AR235: 10, AR215: 10, AR311: 10, AR222: 9, AR207: 9, AR212: 9, AR170: 9, AR168: 8, AR282: 8, AR217: 8, AR221: 8, AR194: 8, AR195: 8, AR252: 8, AR309: 7, AR261: 7, AR166: 7, AR308: 7, AR171: 7, AR165: 7, AR164: 7, AR216: 7, AR277: 6, AR263: 6, AR225: 6, AR288: 6, AR172: 6, AR161: 6, AR162: 6, AR312: 5, AR163: 5, AR245: 5, AR192: 5, AR180: 5, AR196: 5, AR297: 5, AR193: 5, AR053: 5, AR250: 5, AR265: 5, AR205: 5, AR242: 5, AR310: 5, AR211: 5, AR204: 4, AR240: 4, AR181: 4, AR254: 4, AR213: 4, AR236: 4, AR206: 4, AR199: 4, AR295: 4, AR052: 4, AR266: 4, AR257: 4, AR203: 4, AR174: 4, AR246: 4, AR177: 4, AR200: 4, AR280: 4, AR189: 4, AR287: 4, AR262: 4, AR178: 3, AR191: 3, AR291: 3, AR249: 3, AR286: 3, AR198: 3, AR285: 3, AR173: 3, AR289: 3, AR060: 3, AR089: 3, AR201: 3, AR243: 3, AR272: 3, AR188: 3, AR239: 3, AR197: 3, AR299: 3, AR183: 3, AR033: 3, AR270: 3, AR300: 3, AR247: 3, AR248: 3, AR296: 3, AR176: 3, AR284: 3.

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	HDTFE17	892317	702	
139	HDTGCT3	635457	149	AR177: 18, AR191: 15, AR174: 14, AR175: 14, AR274: 13, AR189: 12, AR190: 12, AR165: 12, AR176: 12, AR164: 11, AR166: 11, AR161: 10, AR162: 10, AR163: 10, AR235: 10, AR181: 10, AR269: 10, AR183: 9, AR173: 9, AR172: 9, AR261: 9, AR295: 9, AR188: 8, AR224: 8, AR236: 8, AR089: 8, AR192: 8, AR282: 8, AR180: 8, AR196: 8, AR214: 8, AR240: 8, AR263: 7, AR217: 7, AR286: 7, AR226: 7, AR270: 7, AR225: 7, AR297: 7, AR182: 7, AR207: 7, AR247: 7, AR169: 7, AR221: 7, AR232: 7, AR275: 7, AR293: 7, AR287: 7, AR222: 6, AR223: 6, AR285: 6, AR258: 6, AR316: 6, AR300: 6, AR238: 6, AR262: 6, AR096: 6, AR290: 6, AR185: 6, AR311: 6, AR264: 6, AR216: 6, AR268: 6, AR171: 6, AR178: 6, AR313: 5, AR309: 5, AR296: 5, AR272: 5, AR239: 5, AR233: 5, AR053: 5, AR257: 5, AR288: 5, AR289: 5, AR213: 5, AR060: 5, AR291: 5, AR104: 5, AR308: 5, AR267: 5, AR203: 5, AR195: 5, AR299: 5, AR033: 5, AR294: 5, AR277: 4, AR228: 4, AR255: 4, AR211: 4, AR237: 4, AR039: 4, AR199: 4, AR266: 4, AR312: 4, AR179: 4, AR198: 4, AR256: 4, AR204: 4, AR061: 4, AR212: 4, AR229: 4, AR200: 4, AR260: 4, AR283: 3, AR231: 3, AR243: 3, AR234: 3, AR271: 3, AR252: 3, AR227: 3, AR170: 3, AR193: 3, AR197: 3, AR055: 3, AR230: 3, AR245: 3, AR201: 3, AR246: 3, AR205: 2, AR210: 2, AR218: 2, L0744: 2, L0747: 2, L0779: 2, L0731: 2, L0758: 2, S0412: 2, H0171: 1, H0716: 1, H0772: 1, L5286: 2, L0743: 2, L0744: 2, L0747: 2, L0779: 2, L0777: 2, L0731: 2, L0758: 2, S0412: 2, H0171: 1, H0716: 1, H0772: 1, H0486: 1, L0021: 1, H0598: 1, S0438: 1, L0769: 1, L0663: 1, L0665: 1, L0742: 1, L0748: 1, L0750: 1 and L0756: 1.
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141	HDTMK50	1011485	151		AR196: 9, AR313: 9, AR162: 9, AR264: 9, AR161: 9, AR165: 9, AR163: 8, AR164: 8, AR173: 8, AR166: 8, AR262: 8, AR175: 8, AR309: 7, AR174: 7, AR247: 7, AR179: 6, AR269: 6, AR240: 6, AR180: 6, AR257: 6, AR200: 6, AR275: 6, AR178: 6, AR270: 6, AR191: 6, AR238: 6, AR258: 6, AR312: 6, AR183: 6, AR199: 5, AR181: 5, AR236: 5, AR188: 5, AR293: 5, AR234: 5, AR285: 5, AR246: 5, AR274: 5, AR252: 5, AR294: 5, AR300: 5, AR203: 5, AR177: 5, AR233: 5, AR296: 5, AR268: 5, AR229: 5, AR263: 5, AR182: 5, AR189: 5, AR096: 4, AR226: 4, AR193: 4, AR231: 4, AR176: 4, AR253: 4, AR287: 4, AR185: 4, AR290: 4, AR297: 4, AR261: 4, AR255: 4, AR207: 4, AR190: 3, AR295: 3, AR217: 3, AR168: 3, AR237: 3, AR299: 3, AR291: 3, AR308: 3, AR267: 3, AR228: 3, AR235: 3, AR089: 3, AR218: 3, AR260: 3, AR212: 3, AR286: 3, AR230: 3, AR239: 3, AR277: 3, AR245: 3, AR282: 3, AR227: 3, AR221: 3, AR039: 2, AR205: 2, AR316: 2, AR033: 2, AR216: 2, AR211: 2, AR060: 2, AR169: 2, AR201: 2, AR266: 2, AR219: 2, AR288: 2, AR232: 2, AR214: 2, AR204: 2, AR053: 2, AR289: 2, AR172: 2, AR256: 2, AR104: 2, AR210: 2, AR225: 1, AR242: 1, AR061: 1, AR171: 1, AR311: 1, L0754: 6, S0474: 5, L0666: 5, L0740: 5, H0486: 4, L0662: 4, L0748: 4, L0766: 3, H0657: 2, S0358: 2, H0587: 2, L0655: 2, S0330: 2, L0744: 2, H0543: 2, H0306: 1, S0418: 1, S0376: 1, S0222: 1, H0574: 1, L0471: 1, H0057: 1, H0594: 1, H0687: 1, H0031: 1, L0142: 1, H0032: 1, H0413: 1, S0426: 1, L0768: 1, L0658: 1, L0558: 1, L0659: 1, L0791: 1, L0664: 1, H0648: 1, S0328: 1, S0136: 1, H0521: 1, H0214: 1, L0742: 1, L0779: 1, L0755: 1, L0731: 1, L0758: 1 and S0192: 1.
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	HDTMK50	857362	705		
142	HE2DY70	722217	152		AR252: 8, AR215: 6, AR242: 3, AR225: 3, AR201: 2, AR180: 2, AR266: 2, AR231: 2, AR181: 2, AR271: 2, AR161: 1, AR162: 1, AR195: 1, AR257: 1, AR262: 1, AR089: 1, AR300: 1, AR217: 1, AR258: 1, AR193: 1, AR291: 1, S0003: 3, H0170: 1, S0278: 1, L0637: 1, L0777: 1, L0731: 1, L0758: 1 and L0362: 1.
143	HE2EB74	513662	153		AR196: 12, AR161: 8, AR162: 8, AR163: 8, AR285: 6, AR165: 6, AR164: 6, AR243: 6, AR166: 6, AR232: 6, AR287: 6, AR188: 6, AR269: 5, AR261: 5, AR295: 5, AR174: 5, AR291: 5, AR226: 5, AR257: 5, AR233: 5, AR171: 5, AR236: 5, AR191: 4, AR264: 4, AR263: 4, AR266: 4, AR296: 4, AR182: 4, AR275: 4, AR288: 4, AR286: 4, AR178: 4, AR255: 4, AR176: 4, AR258: 4, AR060: 4, AR089: 4, AR299: 4, AR308: 4, AR238: 4, AR309: 4, AR175: 4, AR104: 4, AR311: 4, AR297: 4, AR239: 4, AR260: 4, AR179: 3, AR177: 3, AR274: 3, AR181: 3, AR237: 3, AR256: 3, AR300: 3, AR289: 3,

144	HE2EN04	545008	154	<p>AR185: 3, AR096: 3, AR312: 3, AR172: 3, AR235: 3, AR189: 3, AR224: 3, AR262: 3, AR272: 3, AR270: 3, AR169: 3, AR316: 3, AR203: 3, AR234: 3, AR228: 3, AR055: 3, AR212: 3, AR290: 3, AR215: 3, AR190: 3, AR268: 3, AR200: 3, AR231: 3, AR313: 3, AR293: 3, AR053: 3, AR267: 3, AR173: 2, AR180: 2, AR294: 2, AR229: 2, AR230: 2, AR240: 2, AR227: 2, AR039: 2, AR247: 2, AR210: 2, AR282: 2, AR199: 2, AR271: 2, AR219: 2, AR250: 2, AR168: 2, AR061: 2, AR183: 2, AR033: 2, AR277: 2, AR217: 2, AR212: 2, AR223: 2, AR283: 2, AR213: 1, AR216: 1, AR193: 1, H0170: 1, L0717: 1, H0586: 1, H0486: 1, H0596: 1, L0770: 1, L0637: 1, L0521: 1, L0766: 1, L0666: 1, H0658: 1, L0779: 1, L0731: 1, L0759: 1 and H0543: 1.</p> <p>AR309: 12, AR264: 11, AR308: 9, AR263: 9, AR311: 8, AR312: 6, AR210: 6, AR225: 6, AR207: 5, AR053: 5, AR245: 5, AR200: 5, AR313: 4, AR272: 4, AR282: 4, AR217: 4, AR271: 4, AR223: 4, AR201: 4, AR183: 4, AR212: 4, AR196: 4, AR193: 4, AR246: 4, AR270: 3, AR274: 3, AR203: 3, AR162: 3, AR161: 3, AR163: 3, AR267: 3, AR176: 3, AR205: 3, AR195: 3, AR172: 3, AR261: 3, AR096: 3, AR165: 3, AR197: 3, AR164: 3, AR268: 2, AR218: 2, AR255: 2, AR177: 2, AR204: 2, AR188: 2, AR168: 2, AR199: 2, AR175: 2, AR166: 2, AR316: 2, AR060: 2, AR216: 2, AR236: 2, AR089: 2, AR266: 2, AR288: 2, AR171: 2, AR213: 2, AR178: 2, AR228: 2, AR262: 2, AR290: 2, AR231: 2, AR179: 2, AR233: 2, AR185: 2, AR239: 2, AR296: 2, AR229: 2, AR234: 2, AR182: 2, AR289: 2, AR285: 2, AR277: 1, AR224: 1, AR181: 1, AR293: 1, AR191: 1, AR237: 1, AR227: 1, AR219: 1, AR286: 1, AR173: 1, AR291: 1, AR269: 1, AR295: 1, AR190: 1, AR258: 1, AR055: 1, AR294: 1, AR211: 1, AR061: 1, AR238: 1, AR252: 1, AR247: 1, AR297: 1, AR283: 1, AR299: 1, AR214: 1, L0749: 5, L0662: 3, L0665: 3, H0144: 3, H0519: 3, S0418: 2, L0518: 2, L0663: 2, H0690: 2, L0740: 2, L0779: 2, H0624: 1, H0170: 1, T0002: 1, S0420: 1, S0360: 1, H0559: 1, H0581: 1, L0471: 1, H0628: 1, H0634: 1, H0616: 1, S0210: 1, L0598: 1, L0770: 1, L0769: 1, L0373: 1, L0372: 1, L0642: 1, L0764: 1, L0768: 1, L0649: 1, L0381: 1, L0650: 1, L0806: 1, L0655: 1, L0657: 1, H0684: 1, S0152: 1, H0631: 1, L0751: 1, L0596: 1, S0011: 1 and H0677: 1.</p>
145	HE2FV03	396139	155	<p>AR225: 457, AR215: 423, AR223: 419, AR214: 310, AR170: 307, AR169: 302, AR296: 290, AR171: 266, AR168: 246, AR291: 231, AR256: 206, AR172: 159, AR255: 156, AR288: 155, AR221: 152, AR289: 150, AR285: 145, AR295: 144, AR224: 144, AR217: 139, AR297: 137, AR235: 133, AR266: 132, AR216: 130, AR260: 118, AR222: 116, AR178: 96, AR183: 90, AR293: 90, AR179: 89, AR287: 88, AR180: 88, AR261: 80, AR176: 80, AR213: 77, AR316: 76, AR262: 74, AR269: 71, AR253: 71, AR270: 70, AR181: 69, AR219: 68, AR258: 68, AR283: 68, AR173: 66, AR290: 64, AR210: 64, AR294: 64, AR250: 63, AR175: 62, AR236: 61, AR033: 61, AR257: 60, AR039: 59, AR238: 57, AR243: 56, AR230: 55, AR252: 54, AR182: 53, AR240: 52, AR242: 52, AR254: 52, AR190: 51, AR268: 51, AR188: 50, AR286: 50, AR199: 49, AR096: 48, AR247: 48, AR205: 48, AR104: 47, AR282: 46, AR245: 46, AR218: 46, AR237: 45, AR189: 45, AR212: 44, AR229: 44, AR174: 44, AR191: 42, AR313: 42, AR185: 41, AR274: 41, AR267: 40, AR263: 40, AR177: 40, AR198: 40, AR089: 40, AR196: 39, AR234: 39, AR264: 39, AR300: 37, AR246: 37, AR271: 37, AR053: 37, AR312: 37, AR163: 37, AR299: 36, AR162: 36, AR161: 36, AR193: 36, AR195: 36, AR309: 35, AR204: 35, AR200: 34, AR201: 34, AR211: 33, AR166: 33, AR165: 33, AR060: 33, AR226: 32, AR272: 32, AR275: 32, AR203: 32, AR192: 32, AR311: 32, AR308: 32, AR227: 31, AR164: 31, AR055: 31, AR231: 30, AR233: 28, AR197: 28, AR232: 27, AR239: 26, AR228: 26, AR061: 24, AR277: 23, AR207: 23, L0666: 5, L0438: 5, L0439: 4, L0731: 4, L0547: 3, H0547: 3, H0170: 2, H0586: 2, S6028: 2, H0539: 2, S0146: 2, L0740: 2, L0752: 2, S0192: 2, S0242: 2, H0171: 1, L0002: 1, L0005: 1, S0408: 1, S0222: 1, H0331: 1, H0156: 1, H0575: 1, H0309: 1, H0597: 1, T0067: 1, L0598: 1, H0529: 1, L0520: 1, L0768: 1, L0803: 1, L0774: 1, L0775: 1,</p>

146	HE2NV57	740750	156	L0776: 1, L0659: 1, L0517: 1, L0518: 1, L0665: 1, S0378: 1, L0779: 1, L0777: 1, L0759: 1, L0588: 1, S0026: 1 and H0506: 1. AR235: 6, AR282: 4, AR309: 4, AR171: 4, AR270: 4, AR178: 3, AR272: 3, AR245: 3, AR269: 3, AR291: 3, AR169: 3, AR268: 3, AR213: 3, AR215: 3, AR254: 3, AR267: 3, AR289: 3, AR274: 3, AR236: 3, AR175: 3, AR053: 3, AR228: 3, AR261: 3, AR242: 2, AR161: 2, AR181: 2, AR308: 2, AR300: 2, AR257: 2, AR238: 2, AR182: 2, AR266: 2, AR204: 2, AR237: 2, AR170: 2, AR288: 2, AR290: 2, AR188: 2, AR297: 2, AR168: 2, AR262: 2, AR162: 2, AR163: 2, AR296: 2, AR233: 2, AR210: 2, AR285: 2, AR295: 2, AR264: 2, AR293: 2, AR165: 2, AR229: 2, AR201: 2, AR189: 2, AR250: 2, AR164: 2, AR221: 2, AR195: 2, AR222: 2, AR223: 2, AR239: 2, AR231: 2, AR294: 2, AR166: 2, AR191: 2, AR179: 2, AR255: 2, AR271: 2, AR287: 2, AR212: 2, AR234: 2, AR299: 2, AR225: 2, AR203: 2, AR246: 2, AR200: 2, AR205: 1, AR089: 1, AR173: 1, AR176: 1, AR240: 1, AR286: 1, AR193: 1, AR199: 1, AR258: 1, AR232: 1, AR096: 1, AR243: 1, AR312: 1, AR185: 1, AR061: 1, AR183: 1, AR230: 1, AR060: 1, S0414: 3, L0805: 3, S0412: 3, H0457: 2, L0756: 2, H0170: 1, H0645: 1, H0455: 1, H0421: 1, H0100: 1, L0803: 1, S0052: 1, S0374: 1, H0696: 1 and L0743: 1. AR284: 121, AR096: 105, AR202: 80, AR184: 79, AR281: 73, AR194: 71, AR290: 63, AR265: 54, AR183: 54, AR283: 52, AR269: 52, AR315: 48, AR314: 46, AR240: 45, AR206: 45, AR310: 44, AR241: 43, AR182: 42, AR251: 42, AR267: 42, AR280: 41, AR244: 38, AR237: 36, AR249: 36, AR313: 36, AR234: 33, AR289: 33, AR055: 32, AR285: 32, AR246: 31, AR039: 31, AR270: 30, AR266: 29, AR298: 29, AR316: 27, AR299: 27, AR186: 27, AR033: 27, AR292: 26, AR198: 26, AR243: 26, AR205: 25, AR282: 25, AR053: 24, AR247: 24, AR273: 24, AR052: 23, AR263: 23, AR089: 23, AR231: 23, AR104: 23, AR312: 22, AR232: 22, AR204: 22, AR277: 22, AR300: 21, AR185: 21, AR218: 21, AR061: 21, AR175: 21, AR294: 21, AR293: 20, AR268: 20, AR229: 20, AR238: 20, AR219: 20, AR256: 19, AR179: 19, AR248: 19, AR309: 19, AR275: 18, AR227: 18, AR177: 18, AR233: 18, AR192: 18, AR291: 17, AR196: 17, AR274: 16, AR296: 16, AR060: 16, AR295: 16, AR213: 15, AR286: 14, AR161: 14, AR163: 14, AR162: 14, AR259: 14, AR253: 13, AR271: 13, AR210: 13, AR226: 12, AR165: 12, AR191: 12, AR164: 11, AR171: 11, AR166: 11, AR258: 10, AR170: 10, AR188: 9, AR180: 9, AR190: 9, AR172: 9, AR174: 9, AR200: 9, AR181: 9, AR217: 9, AR169: 9, AR272: 9, AR264: 8, AR176: 8, AR252: 8, AR211: 8, AR168: 8, AR189: 7, AR173: 7, AR193: 7, AR197: 7, AR216: 7, AR255: 7, AR261: 6, AR199: 6, AR260: 6, AR235: 6, AR311: 6, AR225: 6, AR236: 6, AR257: 6, AR239: 6, AR178: 5, AR288: 5, AR287: 5, AR221: 5, AR224: 5, AR228: 5, AR308: 5, AR262: 5, AR297: 5, AR214: 5, AR195: 5, AR215: 4, AR212: 4, AR250: 4, AR203: 4, AR223: 4, AR201: 4, AR245: 3, AR230: 3, AR222: 3, AR207: 3, AR254: 1, L0439: 11, L0770: 4, L0659: 4, L0663: 4, L0740: 4, S0126: 3, L0747: 3, L0750: 3, H0013: 2, S0474: 2, S0214: 2, S0440: 2, L0774: 2, H0519: 2, S0380: 2, L0749: 2, L0755: 2, L0759: 2, H0171: 1, H0556: 1, S0040: 1, H0583: 1, H0656: 1, H0255: 1, S0408: 1, H0637: 1, H0733: 1, S0045: 1, T0040: 1, H0427: 1, H0599: 1, H0618: 1, H0581: 1, H0032: 1, L0738: 1, L0471: 1, H0014: 1, H0594: 1, S6028: 1, T0086: 1, H0124: 1, H0090: 1, H0591: 1, H0038: 1, H0616: 1, H0551: 1, S0150: 1, S0426: 1, L0763: 1, L0769: 1, L0638: 1, L0772: 1, L0771: 1, L0521: 1, L0775: 1, L0806: 1, L0805: 1, L0776: 1, L0542: 1, L0666: 1, L0664: 1, L0710: 1, L0438: 1, H0547: 1, H0521: 1, S0404: 1, S0406: 1, H0576: 1, S3014: 1, L0742: 1, L0731: 1, L0758: 1, H0595: 1, S0436: 1, H0665: 1 and H0422: 1. AR197: 7, AR266: 5, AR176: 5, AR309: 5, AR282: 4, AR204: 4, AR183: 4, AR267: 4, AR269: 4, AR272: 4, AR193: 4, AR178: 4, AR195: 4, AR246: 3, AR182: 3, AR291: 3, AR163: 3, AR235: 3, AR233: 3, AR164: 3, AR217: 3, AR237: 3, AR264: 3, AR270: 3, AR166: 3, AR168: 3, AR175: 3, AR297: 3, AR268: 3, AR162: 3, AR221: 3, AR243: 3, AR161: 3,
147	HE2PD49	638617	157	
148	HE2PY40	753229	158	

149	HE6EU50	411998	159	<p>AR239: 3, AR289: 3, AR163: 3, AR089: 3, AR053: 3, AR181: 3, AR215: 3, AR039: 3, AR293: 3, AR286: 3, AR296: 3, AR201: 3, AR252: 3, AR060: 3, AR288: 3, AR188: 3, AR224: 3, AR295: 3, AR225: 2, AR287: 2, AR173: 2, AR196: 2, AR258: 2, AR294: 2, AR179: 2, AR203: 2, AR274: 2, AR290: 2, AR274: 2, AR190: 2, AR316: 2, AR191: 2, AR238: 2, AR277: 2, AR312: 2, AR260: 2, AR229: 2, AR212: 2, AR033: 2, AR254: 2, AR205: 2, AR189: 2, AR199: 2, AR275: 2, AR308: 2, AR180: 2, AR271: 2, AR200: 2, AR214: 1, AR242: 1, AR177: 1, AR171: 1, AR313: 1, AR236: 1, AR096: 1, AR219: 1, AR256: 1, AR211: 1, AR300: 1, AR218: 1, AR232: 1, H0624: 1 and H0171: 1.</p> <p>AR253: 63, AR250: 44, AR254: 37, AR243: 37, AR245: 31, AR264: 30, AR312: 27, AR309: 27, AR197: 26, AR263: 25, AR053: 25, AR212: 25, AR246: 23, AR096: 23, AR213: 21, AR308: 20, AR039: 18, AR311: 16, AR198: 16, AR161: 16, AR162: 16, AR195: 15, AR163: 15, AR165: 15, AR089: 15, AR164: 14, AR180: 14, AR272: 14, AR166: 14, AR296: 13, AR271: 13, AR207: 12, AR286: 12, AR291: 12, AR275: 12, AR173: 12, AR205: 11, AR295: 11, AR193: 11, AR313: 11, AR240: 10, AR268: 10, AR178: 10, AR266: 10, AR201: 10, AR192: 10, AR252: 10, AR270: 9, AR176: 9, AR316: 9, AR181: 9, AR297: 9, AR269: 9, AR293: 8, AR242: 8, AR183: 8, AR290: 8, AR285: 8, AR282: 8, AR247: 7, AR294: 7, AR175: 7, AR204: 7, AR060: 7, AR229: 7, AR289: 7, AR288: 7, AR267: 6, AR274: 6, AR231: 6, AR179: 6, AR210: 6, AR177: 6, AR219: 5, AR299: 5, AR218: 5, AR182: 5, AR185: 5, AR288: 5, AR287: 5, AR300: 5, AR237: 5, AR239: 5, AR061: 4, AR033: 4, AR238: 4, AR277: 4, AR211: 4, AR226: 4, AR189: 4, AR230: 4, AR190: 4, AR170: 4, AR234: 3, AR233: 3, AR227: 3, AR260: 3, AR232: 3, AR055: 3, AR174: 3, AR191: 3, AR258: 3, AR256: 2, AR104: 2, AR168: 2, AR223: 2, AR188: 1, AR214: 1, AR225: 1, AR216: 1, AR224: 1, AR257: 1, L0748: 3, L0749: 3, H0100: 1 and L0753: 1.</p> <p>AR180: 17, AR181: 15, AR178: 15, AR096: 14, AR182: 13, AR179: 13, AR246: 13, AR175: 13, AR191: 12, AR183: 12, AR190: 12, AR240: 11, AR268: 10, AR270: 10, AR174: 10, AR269: 10, AR173: 9, AR243: 9, AR176: 9, AR060: 8, AR185: 7, AR255: 7, AR189: 7, AR201: 7, AR192: 7, AR039: 7, AR193: 7, AR197: 7, AR257: 7, AR055: 6, AR295: 6, AR290: 6, AR296: 6, AR299: 6, AR285: 6, AR288: 6, AR207: 5, AR291: 5, AR188: 5, AR254: 5, AR287: 5, AR297: 5, AR218: 5, AR294: 5, AR316: 5, AR235: 5, AR293: 5, AR242: 4, AR264: 4, AR245: 4, AR089: 4, AR236: 4, AR177: 4, AR195: 4, AR161: 4, AR198: 4, AR271: 4, AR162: 4, AR163: 4, AR204: 4, AR205: 4, AR165: 4, AR275: 4, AR196: 4, AR267: 4, AR262: 4, AR164: 4, AR260: 4, AR286: 3, AR261: 3, AR300: 3, AR104: 3, AR289: 3, AR169: 3, AR313: 3, AR168: 3, AR033: 3, AR266: 3, AR238: 3, AR253: 3, AR247: 3, AR222: 3, AR258: 3, AR228: 3, AR200: 3, AR312: 3, AR166: 3, AR229: 2, AR224: 2, AR272: 2, AR199: 2, AR231: 2, AR250: 2, AR203: 2, AR061: 2, AR263: 2, AR237: 2, AR053: 2, AR219: 2, AR226: 2, AR230: 2, AR282: 2, AR277: 2, AR221: 2, AR274: 2, AR213: 2, AR283: 2, AR232: 2, AR217: 2, AR309: 2, AR227: 2, AR239: 2, AR214: 2, AR256: 2, AR234: 2, AR212: 2, AR308: 2, AR171: 1, AR216: 1, AR225: 1, AR252: 1, AR170: 1, L0779: 8, L0770: 7, L0731: 7, L0662: 6, L0803: 5, L0599: 5, L0758: 4, H0739: 3, H0624: 3, H0486: 3, H0615: 3, L0748: 3, L0750: 3, H0713: 2, S0222: 2, H0575: 2, H0050: 2, H0031: 2, H0553: 2, S0036: 2, H0038: 2, S0422: 2, L0804: 2, L0774: 2, L0775: 2, L0647: 2, L0438: 2, L0742: 2, L0743: 2, L0747: 2, L0777: 2, L0605: 2, L0485: 2, H0171: 1, S0442: 1, H0208: 1, H0411: 1, H0586: 1, H0587: 1, L3655: 1, H0013: 1, H0156: 1, H0108: 1, H0581: 1, S0049: 1, H0194: 1, H0572: 1, H0123: 1, L0471: 1, H0024: 1, H0373: 1, S0051: 1, S6028: 1, H0188: 1, H0644: 1, H0628: 1, H0383: 1, H0316: 1, T0067: 1, L0768: 1, L0794: 1, L0375: 1, L0806: 1, L0659: 1, L0532: 1, L0665: 1, H0144: 1, H0691: 1, S0126: 1, H0660: 1, H0648: 1, S0328: 1, S0378: 1, S0380: 1, H0436: 1, S0028: 1, L0749: 1, L0756: 1, L0759: 1, H0444: 1, S0242: 1 and H0352: 1.</p>
150	HE8DS15	847060	160	<p>AR190: 12, AR240: 11, AR268: 10, AR270: 10, AR174: 10, AR269: 10, AR173: 9, AR243: 9, AR176: 9, AR060: 8, AR185: 7, AR255: 7, AR189: 7, AR201: 7, AR192: 7, AR039: 7, AR193: 7, AR197: 7, AR257: 7, AR055: 6, AR295: 6, AR290: 6, AR296: 6, AR299: 6, AR285: 6, AR288: 6, AR207: 5, AR291: 5, AR188: 5, AR254: 5, AR287: 5, AR297: 5, AR218: 5, AR294: 5, AR316: 5, AR235: 5, AR293: 5, AR242: 4, AR264: 4, AR245: 4, AR089: 4, AR236: 4, AR177: 4, AR195: 4, AR161: 4, AR198: 4, AR271: 4, AR162: 4, AR163: 4, AR204: 4, AR205: 4, AR165: 4, AR275: 4, AR196: 4, AR267: 4, AR262: 4, AR164: 4, AR260: 4, AR286: 3, AR261: 3, AR300: 3, AR104: 3, AR289: 3, AR169: 3, AR313: 3, AR168: 3, AR033: 3, AR266: 3, AR238: 3, AR253: 3, AR247: 3, AR222: 3, AR258: 3, AR228: 3, AR200: 3, AR312: 3, AR166: 3, AR229: 2, AR224: 2, AR272: 2, AR199: 2, AR231: 2, AR250: 2, AR203: 2, AR061: 2, AR263: 2, AR237: 2, AR053: 2, AR219: 2, AR226: 2, AR230: 2, AR282: 2, AR277: 2, AR221: 2, AR274: 2, AR213: 2, AR283: 2, AR232: 2, AR217: 2, AR309: 2, AR227: 2, AR239: 2, AR214: 2, AR256: 2, AR234: 2, AR212: 2, AR308: 2, AR171: 1, AR216: 1, AR225: 1, AR252: 1, AR170: 1, L0779: 8, L0770: 7, L0731: 7, L0662: 6, L0803: 5, L0599: 5, L0758: 4, H0739: 3, H0624: 3, H0486: 3, H0615: 3, L0748: 3, L0750: 3, H0713: 2, S0222: 2, H0575: 2, H0050: 2, H0031: 2, H0553: 2, S0036: 2, H0038: 2, S0422: 2, L0804: 2, L0774: 2, L0775: 2, L0647: 2, L0438: 2, L0742: 2, L0743: 2, L0747: 2, L0777: 2, L0605: 2, L0485: 2, H0171: 1, S0442: 1, H0208: 1, H0411: 1, H0586: 1, H0587: 1, L3655: 1, H0013: 1, H0156: 1, H0108: 1, H0581: 1, S0049: 1, H0194: 1, H0572: 1, H0123: 1, L0471: 1, H0024: 1, H0373: 1, S0051: 1, S6028: 1, H0188: 1, H0644: 1, H0628: 1, H0383: 1, H0316: 1, T0067: 1, L0768: 1, L0794: 1, L0375: 1, L0806: 1, L0659: 1, L0532: 1, L0665: 1, H0144: 1, H0691: 1, S0126: 1, H0660: 1, H0648: 1, S0328: 1, S0378: 1, S0380: 1, H0436: 1, S0028: 1, L0749: 1, L0756: 1, L0759: 1, H0444: 1, S0242: 1 and H0352: 1.</p>

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152	HE8QV67	1050076	162	AR104: 11, AR299: 9, AR089: 9, AR055: 9, AR219: 9, AR060: 8, AR218: 8, AR039: 7, AR283: 7, AR316: 7, AR282: 7, AR277: 7, AR313: 6, AR300: 6, AR240: 6, AR185: 6, AR096: 6, L0748: 8, L0439: 8, S0404: 7, L0766: 6, H0144: 5, H0052: 4, L0769: 4, L0752: 4, L0758: 4, H0556: 3, H0024: 3, H0163: 3, L0646: 3, L0768: 3, L0776: 3, L0740: 3, H0624: 2, H0265: 2, S0444: 2, S0408: 2, S0046: 2, H0333: 2, H0486: 2, H0383: 2, L0770: 2, L0649: 2, L0666: 2, S0374: 2, H0547: 2, H0436: 2, L0751: 2, L0747: 2, L0759: 2, L0597: 2, L0593: 2, H0171: 1, S0342: 1, H0657: 1, S0116: 1, H0384: 1, H0662: 1, S0442: 1, S0358: 1, H0735: 1, S0007: 1, S0045: 1, H0749: 1, S0300: 1, S0278: 1, S0222: 1, H0013: 1, H0581: 1, H0421: 1, H0046: 1, H0009: 1, L0157: 1, H0620: 1, H0014: 1, H0051: 1, T0006: 1, H0617: 1, S0036: 1, H0135: 1, H0038: 1, S0038: 1, L0351: 1, S0440: 1, S0142: 1, H0529: 1, L0796: 1, L0772: 1, L0641: 1, L0642: 1, L0643: 1, L0764: 1, L0774: 1, L0775: 1, L0375: 1, L0651: 1, L0805: 1, L0657: 1, L0383: 1, L0809: 1, L0663: 1, S0052: 1, L0352: 1, S0126: 1, H0689: 1, H0690: 1, H0670: 1, H0648: 1, S0378: 1, S0044: 1, L0744: 1, L0754: 1, L0756: 1, L0786: 1, L0779: 1, L0777: 1, L0753: 1, L0731: 1, L0592: 1, L0599: 1, L0608: 1, L0595: 1, H0667: 1 and H0008: 1.
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	HE9DG49	382000	708	
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171	HEGBS69	1093342	181	AR104: 10, AR055: 5, AR060: 5, AR282: 4, AR300: 4, AR277: 4, AR218: 3, AR089: 3, AR299: 3, AR219: 3, AR283: 3, AR039: 2, AR185: 2, AR240: 2, AR313: 2, AR096: 2, AR316: 2, L0793: 3, L0741: 3, L0742: 3, L0796: 2, L0745: 2, H0261: 1, H0550: 1, S0222: 1, S0010: 1, H0052: 1, L0769: 1, L0794: 1 and L0758: 1.
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172	HELGK31	681138	182	AR310: 67, AR259: 63, AR052: 53, AR289: 52, AR265: 49, AR292: 39, AR053: 38, AR256: 37, AR184: 36, AR286: 35, AR298: 32, AR294: 31, AR312: 30, AR263: 28, AR273: 27, AR309: 26, AR258: 26, AR283: 26, AR194: 26, AR284: 25, AR213: 25, AR266: 25, AR248: 21, AR293: 21, AR244: 20, AR246: 20, AR205: 20, AR291: 18, AR247: 18, AR206: 18, AR274: 17, AR269: 17, AR268: 14, AR243: 14, AR270: 14, AR275: 13, AR186: 13, AR218: 12, AR253: 12, AR313: 12, AR177: 12, AR219: 11, AR249: 11, AR202: 11, AR183: 11, AR290: 11, AR271: 11, AR267: 10, AR296: 10, AR175: 10, AR182: 9, AR241: 9, AR033: 9, AR198: 9, AR285: 9, AR089: 8, AR282: 8, AR295: 8, AR231: 7, AR240: 7, AR237: 7, AR055: 7, AR204: 6, AR061: 6, AR251: 6, AR299: 6, AR238: 6, AR096: 6, AR316: 6, AR192: 5, AR185: 5, AR232: 5, AR234: 5, AR104: 4, AR226: 4, AR162: 4, AR165: 4, AR161: 4, AR163: 4, AR039: 4, AR257: 4, AR229: 4, AR164: 4, AR060: 4, AR179: 4, AR264: 4, AR166: 4, AR300: 4, AR272: 4, AR217: 3, AR308: 3, AR261: 3, AR277: 3, AR196: 3, AR297: 3, AR255: 3, AR173: 3, AR195: 3, AR311: 3, AR288: 3, AR190: 3, AR262: 3, AR233: 3, AR224: 3, AR221: 3, AR178: 3, AR216: 3, AR171: 2, AR191: 2, AR188: 2, AR287: 2, AR181: 2, AR176: 2, AR180: 2, AR211: 2, AR189: 2, AR174: 2, AR225: 2, AR200: 2, AR210: 2, AR227: 2, AR223: 2, AR254: 2, AR214: 1, AR260: 1, AR235: 1, AR199: 1, AR215: 1, AR203: 1, AR281: 1, AR168: 1, AR230: 1, AR170: 1, L0771: 3, L0766: 3, L0783: 3, L0748: 3, L0749: 3, L0757: 3, L0758: 3, H0673: 2, L0369: 2, L0769: 2, S0374: 2, L0438: 2, H0658: 2, H0696: 2, L0439: 2, L0777: 2, L0592: 2, L0595: 2, H0543: 2, H0265: 1, H0713: 1, H0661: 1, H0176: 1, S0444: 1, L3646: 1, S0045: 1, H0640: 1, H0013: 1, S0010: 1, H0318: 1, H0746: 1, H0232: 1, H0546: 1, H0065: 1, H0566: 1, H0024: 1, H0083: 1, H0266: 1, T0006: 1, H0617: 1, L0055: 1, H0165: 1, L0456: 1, H0040: 1, H0634: 1, H0351: 1, T0067: 1, H0100: 1, T0041: 1, H0560: 1, S0438: 1, L0762: 1, L0763: 1, L0772: 1, L0648: 1, L0363: 1, L0767: 1, L0768: 1, L0651: 1, L0776: 1, L0807: 1, L0636: 1, L0809: 1, L0545: 1, L0647: 1, L0793: 1, L0664: 1, L4560: 1, L2260: 1, L2671: 1, L3827: 1, H0648: 1, H0436: 1, S3014: 1, L0742: 1, L0750: 1, L0779: 1, L0752: 1, H0445: 1, S0434: 1, S0436: 1, L0596: 1 and S0194: 1.
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197	HFPAC071	629193	207	



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223	HHEAA08	638231	883427	728	AR192: 9, AR246: 7, AR217: 7, AR214: 7, AR197: 7, AR207: 6, AR250: 6, AR195: 6, AR216: 6, AR169: 6, AR039: 6, AR089: 6, AR271: 6, AR223: 5, AR312: 5, AR212: 5, AR313: 5, AR222: 5, AR282: 5, AR165: 5, AR196: 5, AR053: 5, AR162: 5, AR161: 5, AR164: 5, AR166: 5, AR254: 5, AR263: 5, AR193: 5, AR225: 5, AR309: 5, AR163: 5, AR311: 5, AR205: 5, AR299: 5, AR235: 4, AR243: 4, AR295: 4, AR264: 4, AR274: 4, AR245: 4, AR300: 4, AR213: 4, AR172: 4, AR275: 4, AR201: 4, AR191: 4, AR060: 4, AR308: 4, AR175: 4, AR261: 4, AR240: 4, AR221: 4, AR296: 4, AR174: 4, AR316: 4, AR178: 4, AR171: 4, AR272: 4, AR242: 4, AR199: 4, AR177: 3, AR096: 3, AR288: 3, AR168: 3, AR033: 3, AR104: 3, AR291: 3, AR257: 3, AR200: 3, AR188: 3, AR218: 3, AR173: 3, AR183: 3, AR285: 3, AR198: 3, AR180: 3, AR189: 3, AR283: 3, AR270: 3, AR268: 3, AR262: 3, AR247: 3, AR293: 3, AR286: 3, AR297: 3, AR238: 3, AR236: 3, AR185: 3, AR237: 3, AR190: 3, AR181: 3, AR258: 2, AR226: 2, AR182: 2, AR232: 2, AR287: 2, AR277: 2, AR289: 2, AR203: 2, AR266: 2, AR294: 2, AR267: 2, AR290: 2, AR204: 2, AR239: 2, AR255: 2, AR231: 2, AR229: 2, AR233: 2, AR256: 2, AR269: 2, AR210: 2, AR219: 2, AR234: 2, AR179: 2, AR227: 2, AR211: 1, AR055: 1, AR260: 1, AR230: 1, AR253: 1, AR061: 1, AR228: 1, AR215: 1, H0341: 1 and H0542: 1.
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224	HHEAA08 HHEMA59	623588 823100	883427 847543	729	AR226: 23, AR238: 16, AR227: 15, AR237: 11, AR173: 9, AR313: 8, AR161: 8, AR162: 7, AR239: 7, AR165: 7, AR164: 7, AR163: 7, AR166: 7, AR089: 7, AR175: 6, AR178: 6, AR180: 5, AR183: 5, AR247: 5, AR169: 5, AR240: 4, AR196: 4, AR300: 4, AR269: 4, AR270: 4, AR204: 4, AR312: 4, AR215: 4, AR268: 4, AR282: 4, AR182: 4, AR179: 4, AR271: 4, AR275: 4, AR096: 4, AR242: 4, AR191: 4, AR177: 4, AR185: 4, AR198: 4, AR264: 4, AR258: 4, AR174: 3, AR181: 3, AR253: 3, AR189: 3, AR316: 3, AR061: 3, AR060: 3, AR267: 3, AR263: 3, AR218: 3, AR104: 3, AR172: 3, AR260: 3, AR212: 3, AR257: 3, AR219: 3, AR229: 3, AR233: 3, AR299: 3, AR216: 3, AR039: 3, AR203: 3, AR053: 3, AR224: 2, AR188: 2, AR176: 2, AR243: 2, AR171: 2, AR266: 2, AR214: 2, AR033: 2, AR308: 2, AR289: 2, AR293: 2, AR232: 2, AR193: 2, AR234: 2, AR277: 2, AR168: 2, AR205: 2, AR195: 2, AR256: 2, AR311: 2, AR201: 2, AR283: 2, AR055: 1, AR213: 1, AR272: 1, AR222: 1, AR200: 1, AR296: 1, AR291: 1, AR288: 1, AR217: 1, AR199: 1, AR192: 1, AR211: 1, AR255: 1, AR190: 1, AR262: 1, AR286: 1, L0771: 5, L0766: 4, L0748: 4, H0551: 3, S0003: 2, H0328: 2, H0615: 2, S0422: 2, H0144: 2, L0438: 2, S0013: 2, L0747: 2, L0756: 2, L0759: 2, H0170: 1, S6024: 1, H0656: 1, S0110: 1, H0662: 1, H0176: 1, S0356: 1, S0360: 1, L0717: 1, S6016: 1, S0222: 1, H0438: 1, H0156: 1, H0575: 1, H0318: 1, H0581: 1, H0020: 1, H0031: 1, S0036: 1, S0294: 1, S0002: 1, L0770: 1, L0638: 1, L0662: 1, L0774: 1, L0652: 1, L0655: 1, L0606: 1, L0659: 1, L0663: 1, S0216: 1, H0648: 1, H0651: 1, H0539: 1, S0152: 1, H0522: 1, L0777: 1, L0731: 1, S0031: 1, L0581: 1, S0192: 1, S0194: 1, H0543: 1 and H0423: 1.
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	HHEMM74	895682	733	
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236	HHFHJ59	411332	246	AR241: 5, AR249: 5, AR310: 5, AR186: 4, AR251: 4, AR052: 4, AR282: 3, AR171: 3, AR055: 3, AR309: 3, AR224: 3, AR176: 3, AR033: 3, AR248: 3, AR184: 3, AR206: 3, AR247: 3, AR061: 2, AR312: 2, AR180: 2, AR253: 2, AR183: 2, AR204: 2, AR265: 2, AR217: 2, AR295: 2, AR299: 2, AR188: 2, AR264: 2, AR268: 2, AR292: 2, AR198: 2, AR238: 2, AR233: 1, AR213: 1, AR182: 1, AR235: 1, AR277: 1, AR060: 1, AR291: 1, AR286: 1, AR178: 1, AR053: 1, AR165: 1, AR259: 1, AR226: 1, AR166: 1, AR267: 1, AR237: 1, AR257: 1, AR089: 1, AR313: 1, AR293: 1, AR294: 1, AR234: 1, AR231: 1, AR266: 1, AR230: 1, AR296: 1, AR163: 1, AR298: 1, AR162: 1, AR283: 1, AR300: 1, AR269: 1, AR096: 1, AR185: 1, AR161: 1, AR200: 1, AR232: 1, L0748: 9, H0620: 6, L0439: 6, L0774: 5, H0657: 4, L0758: 4, S0358: 3, H0617: 3, L0740: 3, L0747: 3, L0752: 3, S0360: 2, S0278: 2, H0492: 2, H0150: 2, H0102: 2, L0769: 2, L0662: 2, L0806: 2, L0527: 2, H0696: 2, S0314: 2, L0756: 2, L0755: 2, L0731: 2, L0759: 2, L0591: 2, H0422: 2, H0556: 1, H0295: 1, H0656: 1, H0341: 1, H0661: 1, S0418: 1, S0420: 1, S0356: 1, S0410: 1, L0717: 1, H0575: 1, H0318: 1, H0421: 1, S0049: 1, H0597: 1, H0545: 1, H0050: 1, H0012: 1, L0492: 1, H0239: 1, H0594: 1, H0424: 1, H0181: 1, H0165: 1, H0413: 1, H0059: 1, L0370: 1, S0294: 1, S0422: 1, H0529: 1, L0763: 1, L0770: 1, L0659: 1, L0771: 1, L0773: 1, L0767: 1, L0768: 1, L0775: 1, L0651: 1, L0376: 1, L0776: 1, L0655: 1, L0657: 1, L0659: 1, L0542: 1, L0526: 1, L0783: 1, L0809: 1, L0529: 1, L0663: 1, L0665: 1, H0144: 1, S0374: 1, H0693: 1, L0438: 1, S0330: 1, S0380: 1, H0134: 1, L0749: 1, L0750: 1, L0786: 1, L0777: 1, H0543: 1 and S0452: 1.
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238	HHFOJ29	1127491	248	AR060: 6, AR055: 5, AR300: 5, AR096: 5, AR283: 5, AR313: 5, AR185: 4, AR104: 4, AR240: 4, AR218: 4, AR316: 4, AR299: 4, AR039: 4, AR089: 3, AR282: 3, AR277: 3, AR219: 2, L0758: 4, H0556: 3, L0779: 3, H0618: 2, L0751: 2,

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	HHPGO40	560969	741	
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253	HUMBI18	545492	263	<p> LO780: 1, L0731: 1, L0757: 1, S0436: 1, S0276: 1 and H0543: 1.  AR214: 33, AR222: 32, AR169: 27, AR235: 25, AR224: 25, AR223: 25, AR207: 24, AR168: 21, AR195: 21, AR213: 20, AR217: 20, AR170: 20, AR172: 20, AR171: 19, AR216: 19, AR263: 17, AR165: 17, AR225: 16, AR196: 16, AR164: 16, AR215: 16, AR221: 16, AR308: 15, AR089: 15, AR166: 15, AR311: 15, AR295: 15, AR242: 14, AR192: 14, AR245: 14, AR177: 13, AR261: 13, AR053: 13, AR312: 13, AR252: 12, AR197: 12, AR288: 12, AR198: 12, AR161: 12, AR162: 12, AR210: 12, AR271: 11, AR264: 11, AR163: 11, AR253: 11, AR033: 11, AR316: 11, AR282: 11, AR236: 10, AR193: 10, AR240: 10, AR277: 10, AR060: 10, AR211: 10, AR285: 10, AR181: 10, AR174: 10, AR299: 10, AR039: 9, AR185: 9, AR188: 9, AR199: 9, AR246: 9, AR297: 9, AR205: 9, AR313: 9, AR096: 9, AR291: 9, AR229: 8, AR219: 8, AR201: 8, AR283: 8, AR272: 8, AR175: 8, AR238: 8, AR055: 8, AR189: 8, AR296: 8, AR250: 8, AR200: 7, AR254: 7, AR286: 7, AR300: 7, AR293: 7, AR247: 7, AR262: 7, AR227: 7, AR287: 7, AR289: 7, AR239: 7, AR232: 7, AR231: 7, AR243: 7, AR173: 7, AR191: 7, AR204: 6, AR258: 6, AR275: 6, AR104: 6, AR230: 6, AR257: 6, AR190: 6, AR180: 6, AR237: 6, AR178: 6, AR183: 6, AR234: 5, AR270: 5, AR255: 5, AR274: 5, AR294: 5, AR260: 5, AR256: 5, AR203: 5, AR290: 5, AR061: 5, AR179: 5, AR228: 4, AR266: 4, AR268: 4, AR176: 4, AR233: 4, AR182: 4, AR267: 3, L0803: 3, L0439: 3, H0341: 2, L0483: 2, L0663: 2, H0520: 2, S0380: 2, L0411: 1, S0418: 1, H0574: 1, H0427: 1, H0545: 1, H0009: 1, S0051: 1, H0623: 1, L0770: 1, L0769: 1, L0764: 1, L0776: 1, L0518: 1, L0783: 1, L0438: 1, H0651: 1, L0748: 1, L0740: 1, L0754: 1, L0745: 1, L0779: 1, L0758: 1, L0591: 1, L0592: 1, H0543: 1 and H0293: 1.  AR169: 7, AR225: 6, AR207: 6, AR192: 5, AR165: 5, AR164: 5, AR183: 5, AR214: 4, AR166: 4, AR253: 4, AR196: 4, AR223: 4, AR162: 4, AR161: 4, AR163: 4, AR224: 4, AR222: 4, AR240: 4, AR089: 4, AR216: 3, AR177: 3, AR309: 3, AR221: 3, AR291: 3, AR217: 3, AR205: 3, AR212: 3, AR178: 3, AR289: 3, AR269: 3, AR096: 3, AR170: 3, AR283: 3, AR039: 3, AR264: 3, AR203: 3, AR282: 3, AR188: 3, AR171: 3, AR268: 3, AR235: 3, AR308: 3, AR296: 3, AR295: 3, AR238: 3, AR313: 3, AR297: 3, AR181: 3, AR060: 3, AR270: 3, AR234: 2, AR263: 2, AR316: 2, AR255: 2, AR285: 2, AR211: 2, AR236: 2, AR200: 2, AR288: 2, AR286: 2, AR189: 2, AR176: 2, AR193: 2, AR055: 2, AR175: 2, AR191: 2, AR277: 2, AR174: 2, AR293: 2, AR262: 2, AR172: 2, AR290: 2, AR231: 2, AR230: 2, AR173: 2, AR201: 2, AR311: 2, AR247: 2, AR219: 2, AR312: 2, AR287: 2, AR227: 2, AR179: 2, AR104: 2, AR229: 2, AR274: 2, AR228: 2, AR257: 2, AR232: 2, AR190: 2, AR258: 2, AR266: 2, AR033: 2, AR239: 2, AR272: 2, AR237: 2, AR204: 2, AR233: 2, AR053: 2, AR061: 2, AR185: 2, AR182: 1, AR213: 1, AR299: 1, AR300: 1, AR252: 1, AR199: 1, AR267: 1, AR294: 1, AR218: 1, AR226: 1, H0424: 3, H0545: 2, L0809: 2, S0212: 1, H0255: 1, S0278: 1, H0587: 1, H0559: 1, H0188: 1, H0087: 1, H0551: 1, H0529: 1, L0769: 1, L0761: 1, L0646: 1, L0363: 1, L0794: 1, L0659: 1, L0783: 1, L0787: 1, L0665: 1, H0660: 1, S0328: 1, H0521: 1, L0777: 1, S0192: 1 and H0422: 1.  AR214: 25, AR223: 21, AR207: 21, AR224: 20, AR263: 20, AR235: 20, AR169: 19, AR308: 19, AR222: 19, AR165: 18, AR168: 17, AR164: 16, AR166: 16, AR172: 16, AR171: 16, AR221: 16, AR217: 16, AR311: 15, AR264: 15, AR170: 15, AR196: 14, AR089: 14, AR195: 14, AR216: 14, AR215: 13, AR225: 13, AR210: 13, AR261: 12, AR033: 12, AR053: 12, AR312: 12, AR211: 12, AR242: 11, AR288: 11, AR197: 11, AR277: 11, AR177: 11, AR271: 11, AR245: 11, AR295: 11, AR161: 11, AR299: 10, AR162: 10, AR163: 10, AR198: 10, AR174: 10, AR213: 10, AR272: 10, AR240: 10, AR252: 10, AR192: 10, AR236: 10, AR316: 10, AR193: 9, AR201: 9, AR055: 9, AR191: 9, AR282: 9, AR285: 9, AR060: 9, </p>
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256	HJMBW30	491209	266	AR181: 9, AR189: 9, AR253: 9, AR313: 8, AR247: 8, AR286: 8, AR283: 8, AR246: 8, AR185: 8, AR218: 7, AR175: 7, AR300: 7, AR219: 7, AR173: 7, AR291: 7, AR212: 7, AR296: 7, AR188: 7, AR096: 7, AR229: 7, AR232: 7, AR039: 7, AR297: 6, AR238: 6, AR269: 6, AR199: 6, AR270: 6, AR289: 6, AR200: 6, AR258: 6, AR190: 6, AR243: 6, AR250: 6, AR293: 6, AR290: 6, AR227: 6, AR176: 6, AR275: 6, AR204: 6, AR205: 6, AR231: 6, AR226: 6, AR287: 6, AR262: 5, AR274: 5, AR257: 5, AR183: 5, AR230: 5, AR237: 5, AR294: 5, AR204: 5, AR178: 5, AR255: 5, AR268: 5, AR203: 5, AR254: 5, AR234: 4, AR256: 4, AR182: 4, AR260: 4, AR061: 4, AR180: 4, AR266: 4, AR179: 4, AR233: 3, AR267: 3, AR228: 3, S0212: 5, L0776: 3, S0404: 3, S0045: 2, L0665: 2, H0670: 2, L0777: 2, L0757: 2, S0342: 1, S0418: 1, H0339: 1, H0013: 1, L0021: 1, H0318: 1, L0794: 1, H0545: 1, H0150: 1, T0079: 1, H0594: 1, H0188: 1, H0687: 1, H0252: 1, H0644: 1, H0616: 1, H0413: 1, L0794: 1, L0766: 1, L0803: 1, L0657: 1, L0809: 1, L0789: 1, L0790: 1, L0663: 1, H0144: 1, L0438: 1, H0658: 1, H0651: 1, L0743: 1, L0439: 1, L0758: 1, S0242: 1, S0194: 1 and S0021: 1.
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	HJPCP42	824612	747	

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	HKAAAH36	838068	751	
	HKAAAH36	815661	752	
	HKAAAH36	590734	753	
261	HKAAAK02	589945	271	AR215: 6, AR169: 5, AR235: 5, AR263: 5, AR207: 5, AR225: 5, AR222: 5, AR217: 5, AR172: 4, AR192: 4, AR224: 4, AR214: 4, AR161: 4, AR223: 4, AR213: 4, AR162: 4, AR309: 4, AR165: 4, AR264: 4, AR282: 4, AR089: 4, AR242: 4, AR171: 4, AR308: 4, AR166: 4, AR197: 4, AR311: 4, AR170: 4, AR240: 4, AR221: 3, AR216: 3, AR164: 3, AR195: 3, AR168: 3, AR163: 3, AR053: 3, AR254: 3, AR205: 3, AR299: 3, AR212: 3, AR177: 3, AR250: 3, AR060: 3, AR312: 2, AR096: 2, AR176: 2, AR198: 2, AR271: 2, AR196: 2, AR275: 2, AR316: 2, AR261: 2, AR193: 2, AR236: 2, AR274: 2,

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269	HKA-EV06	1352263	279	<p>AR165: 10, AR164: 10, AR166: 10, AR258: 10, AR191: 9, AR240: 9, AR270: 9, AR282: 9, AR269: 9, AR257: 9, AR262: 9, AR181: 9, AR297: 9, AR275: 9, AR197: 9, AR053: 8, AR296: 8, AR179: 8, AR174: 8, AR177: 8, AR238: 8, AR213: 8, AR189: 8, AR285: 8, AR264: 8, AR236: 8, AR218: 8, AR182: 8, AR234: 8, AR200: 8, AR287: 8, AR316: 7, AR212: 7, AR185: 7, AR207: 7, AR261: 7, AR226: 7, AR188: 7, AR309: 7, AR295: 7, AR268: 7, AR254: 7, AR176: 7, AR198: 7, AR294: 7, AR271: 7, AR060: 7, AR312: 7, AR245: 7, AR286: 6, AR039: 6, AR203: 6, AR231: 6, AR193: 6, AR288: 6, AR233: 6, AR243: 6, AR266: 6, AR250: 6, AR205: 6, AR272: 6, AR224: 6, AR221: 6, AR204: 6, AR277: 6, AR237: 6, AR230: 6, AR195: 5, AR168: 5, AR267: 5, AR201: 5, AR255: 5, AR222: 5, AR219: 5, AR225: 5, AR235: 5, AR104: 5, AR274: 5, AR260: 5, AR263: 5, AR033: 5, AR170: 5, AR172: 5, AR290: 5, AR289: 5, AR239: 5, AR311: 5, AR190: 4, AR246: 4, AR283: 4, AR169: 4, AR228: 4, AR308: 4, AR256: 4, AR214: 4, AR227: 3, AR171: 3, AR055: 3, AR232: 3, AR217: 3, AR223: 3, AR210: 3, AR061: 3, AR211: 2, AR216: 1, L0766: 2, L0791: 2, L0748: 2, L0758: 2, H0494: 1, L0772: 1, S0216: 1, L0750: 1, L0771: 1 and L0759: 1.</p>
270	HKA-EV06 HKA-FK41	638238 545018	760 280	<p>AR272: 35, AR165: 34, AR163: 33, AR164: 33, AR161: 32, AR162: 32, AR245: 32, AR166: 32, AR274: 28, AR212: 28, AR205: 26, AR311: 23, AR242: 22, AR264: 21, AR308: 20, AR214: 20, AR174: 19, AR197: 19, AR216: 16, AR223: 15, AR222: 15, AR313: 15, AR213: 14, AR312: 14, AR195: 14, AR225: 14, AR247: 13, AR201: 13, AR254: 12, AR309: 12, AR053: 12, AR275: 12, AR263: 12, AR168: 12, AR246: 11, AR227: 11, AR224: 11, AR215: 11, AR252: 11, AR089: 11, AR170: 10, AR243: 10, AR172: 10, AR192: 10, AR221: 9, AR241: 9, AR189: 9, AR185: 9, AR250: 9, AR240: 8, AR039: 8, AR199: 8, AR204: 8, AR179: 7, AR198: 7, AR096: 7, AR169: 7, AR193: 7, AR177: 7, AR188: 7, AR297: 6, AR253: 6, AR236: 6, AR249: 6, AR300: 6, AR262: 6, AR271: 6, AR183: 6, AR104: 6, AR261: 6, AR299: 6, AR234: 5, AR239: 5, AR194: 5, AR173: 5, AR181: 5, AR265: 5, AR257: 5, AR316: 5, AR288: 5, AR207: 5, AR190: 5, AR060: 5, AR282: 5, AR180: 5, AR233: 5, AR230: 4, AR231: 4, AR293: 4, AR176: 4, AR178: 4, AR290: 4, AR287: 4, AR191: 4, AR196: 4, AR291: 4, AR238: 4, AR255: 4, AR296: 4, AR235: 4, AR273: 4, AR289: 3, AR270: 3, AR266: 3, AR052: 3, AR203: 3, AR229: 3, AR200: 3, AR206: 3, AR228: 3, AR294: 3, AR283: 3, AR295: 3, AR033: 3, AR175: 2, AR269: 2, AR268: 2, AR248: 2, AR210: 2, AR237: 2, AR182: 2, AR285: 2, AR258: 2, AR286: 2, AR186: 2, AR267: 2, AR061: 2, AR232: 2, AR226: 2, AR244: 2, AR260: 2, AR219: 1, AR055: 1, AR227: 1, AR211: 1, AR310: 1, AR281: 1, AR218: 1, AR256: 1, L0438: 2, L0758: 2, S0442: 1, S0354: 1, S0444: 1, H0741: 1, L0021: 1, T0082: 1, H0046: 1, H0494: 1, S0440: 1, L3815: 1, L0800: 1, L0662: 1, L5574: 1, L0803: 1, L0776: 1, L0659: 1, L2653: 1, L2653: 1, S0374: 1, H0547: 1, H0672: 1, S0330: 1, H0521: 1, H0696: 1, L0439: 1, L0752: 1, L0594: 1 and H0543: 1.</p>
270	HKA-EV06 HKA-FK41	638238 545018	760 280	<p>AR188: 28, AR275: 14, AR200: 11, AR196: 10, AR104: 9, AR217: 8, AR165: 7, AR274: 7, AR164: 7, AR191: 7, AR166: 7, AR161: 7, AR162: 7, AR163: 7, AR189: 7, AR272: 6, AR210: 6, AR089: 6, AR269: 6, AR238: 6, AR203: 6, AR214: 6, AR060: 6, AR247: 6, AR271: 5, AR183: 5, AR282: 5, AR270: 5, AR221: 5, AR180: 5, AR216: 5, AR313: 5, AR053: 5, AR264: 5, AR205: 5, AR176: 5, AR290: 5, AR174: 4, AR215: 4, AR308: 4, AR173: 4, AR190: 4, AR219: 4, AR312: 4, AR178: 4, AR175: 4, AR218: 4, AR316: 4, AR177: 4, AR185: 4, AR243: 4, AR033: 4, AR197: 4, AR268: 4, AR198: 4, AR182: 4, AR299: 4, AR193: 4, AR267: 4, AR195: 4, AR246: 4, AR240: 4, AR181: 4, AR199: 4, AR211: 4, AR061: 4, AR213: 4, AR096: 3, AR300: 3, AR212: 3, AR291: 3, AR311: 3, AR261: 3, AR266: 3, AR232: 3, AR226: 3, AR297: 3, AR289: 3, AR235: 3, AR237: 3, AR296: 3, AR309: 3, AR201: 3, AR234: 3, AR230: 3.</p>

271	HKAF166	946512	281	<p>AR262: 3, AR277: 2, AR179: 2, AR285: 2, AR257: 2, AR231: 2, AR223: 2, AR228: 2, AR236: 2, AR225: 2, AR288: 2, AR293: 2, AR294: 2, AR256: 2, AR283: 2, AR233: 2, AR258: 2, AR222: 2, AR287: 2, AR229: 2, AR224: 1, AR171: 1, AR260: 1, AR295: 1, AR227: 1, L0779: 10, H0547: 9, L0770: 7, L0659: 7, L0754: 7, S0010: 6, L0439: 6, L0740: 6, L0663: 5, H0013: 4, L0809: 4, H0539: 4, L0747: 4, L0731: 4, L0756: 4, L0731: 4, L0759: 4, S0360: 3, H0156: 3, H0581: 3, H0090: 3, H0412: 3, S0438: 3, L0774: 3, L0755: 3, L0758: 3, S0434: 3, L0593: 3, H0542: 3, S0282: 2, S0356: 2, H0486: 2, S0049: 2, H0046: 2, L0471: 2, S0003: 2, H0428: 2, H0616: 2, T0042: 2, S0440: 2, S0150: 2, S0002: 2, L0598: 2, H0529: 2, L0640: 2, L0637: 2, L0646: 2, L0766: 2, L0776: 2, L0666: 2, L0665: 2, H0520: 2, H0519: 2, S0126: 2, S0152: 2, S0406: 2, L0748: 2, L0596: 2, L0599: 2, S0470: 1, H0717: 1, L0778: 1, S0212: 1, S0001: 1, S0418: 1, S0354: 1, S0376: 1, S0444: 1, S0408: 1, S0410: 1, S0468: 1, H0619: 1, L0717: 1, S0278: 1, H0369: 1, S0222: 1, S6014: 1, H0409: 1, H0587: 1, H0574: 1, H0632: 1, T0039: 1, H0427: 1, H0042: 1, S0346: 1, H0421: 1, T0115: 1, L0040: 1, H0231: 1, H0546: 1, H0545: 1, T0010: 1, S0214: 1, H0252: 1, H0553: 1, H0644: 1, H0124: 1, H0316: 1, H0598: 1, S0036: 1, H0591: 1, H0551: 1, H0477: 1, H0264: 1, H0100: 1, S0014: 1, H0625: 1, S0144: 1, S0422: 1, L0762: 1, L0769: 1, L0638: 1, L0667: 1, L0643: 1, L0764: 1, L0649: 1, L0803: 1, L0775: 1, L0375: 1, L0806: 1, L0805: 1, L0652: 1, L0653: 1, L0655: 1, L0792: 1, L0664: 1, H0144: 1, H0711: 1, H0684: 1, H0660: 1, H0672: 1, H0521: 1, H0696: 1, H0627: 1, L0742: 1, L0777: 1, L0752: 1, S0031: 1, S0436: 1, L0589: 1, L0591: 1, L0608: 1, L0594: 1, H0653: 1, H0667: 1, H0543: 1, H0423: 1 and S0424: 1.</p> <p>AR214: 32, AR195: 28, AR222: 28, AR169: 27, AR223: 26, AR224: 25, AR168: 23, AR172: 23, AR235: 22, AR217: 21, AR311: 20, AR216: 20, AR207: 19, AR221: 19, AR171: 18, AR263: 18, AR225: 17, AR264: 16, AR215: 15, AR281: 15, AR196: 14, AR170: 14, AR212: 14, AR261: 13, AR252: 13, AR163: 13, AR288: 12, AR265: 12, AR161: 12, AR162: 12, AR242: 12, AR309: 12, AR211: 11, AR165: 11, AR166: 11, AR236: 11, AR164: 11, AR199: 11, AR308: 11, AR315: 11, AR210: 10, AR254: 10, AR193: 10, AR213: 10, AR174: 10, AR245: 9, AR191: 9, AR297: 9, AR053: 9, AR188: 9, AR197: 9, AR181: 9, AR280: 8, AR173: 8, AR200: 8, AR180: 8, AR240: 8, AR310: 8, AR189: 8, AR287: 8, AR239: 8, AR272: 7, AR251: 7, AR295: 7, AR262: 7, AR177: 7, AR314: 7, AR312: 7, AR190: 7, AR230: 7, AR033: 7, AR271: 7, AR282: 6, AR229: 6, AR283: 6, AR257: 6, AR192: 6, AR198: 6, AR275: 6, AR205: 6, AR201: 6, AR203: 6, AR313: 6, AR249: 6, AR274: 6, AR300: 6, AR260: 6, AR089: 5, AR277: 5, AR238: 5, AR176: 5, AR299: 5, AR246: 5, AR285: 5, AR178: 5, AR218: 5, AR316: 5, AR286: 5, AR258: 5, AR247: 4, AR291: 4, AR255: 4, AR248: 4, AR060: 4, AR052: 4, AR231: 4, AR270: 4, AR226: 4, AR289: 4, AR228: 4, AR253: 4, AR096: 4, AR175: 4, AR185: 4, AR234: 4, AR269: 4, AR055: 4, AR227: 4, AR183: 3, AR232: 3, AR039: 3, AR219: 3, AR296: 3, AR179: 3, AR237: 3, AR256: 3, AR104: 3, AR290: 3, AR233: 3, AR204: 3, AR293: 3, AR250: 3, AR268: 3, AR243: 2, AR266: 2, AR267: 2, AR061: 2, AR294: 2, AR182: 2, AR202: 2, AR273: 1, AR186: 1, S0474: 5, S0422: 3, H0580: 2, S0444: 1, H0494: 1 and H0543: 1.</p>
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	HKAF166	904790	762	
272	HKDBF34	833065	282	<p>AR060: 22, AR244: 10, AR194: 8, AR241: 8, AR238: 6, AR281: 6, AR192: 6, AR206: 6, AR205: 6, AR246: 6, AR202: 5, AR282: 5, AR182: 5, AR271: 5, AR243: 5, AR277: 4, AR232: 4, AR283: 4, AR226: 4, AR266: 4, AR316: 3, AR251: 3, AR186: 3, AR234: 3, AR053: 3, AR227: 3, AR237: 3, AR269: 3, AR310: 3, AR204: 3, AR247: 3, AR231: 3, AR184: 3, AR052: 3, AR198: 3, AR183: 3, AR229: 3, AR313: 3, AR275: 3, AR061: 3, AR312: 2, AR273: 2, AR286: 2, AR295: 2, AR240: 2, AR298: 2, AR039: 2, AR104: 2, AR299: 2, AR055: 2, AR267: 2, AR289: 2, AR285: 2, AR270: 2,</p>

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273	HKDBF34 HKGAT94	587268 762811	763 283	
	HKGAT94	460631	764	AR170: 6, AR282: 6, AR235: 5, AR180: 5, AR215: 5, AR225: 4, AR263: 4, AR053: 4, AR271: 4, AR161: 4, AR162: 4, AR163: 4, AR165: 4, AR207: 4, AR164: 4, AR264: 3, AR166: 3, AR254: 3, AR269: 3, AR272: 3, AR089: 3, AR224: 3, AR312: 3, AR313: 3, AR311: 3, AR223: 3, AR169: 3, AR308: 3, AR295: 3, AR177: 2, AR216: 2, AR171: 2, AR212: 2, AR252: 2, AR060: 2, AR277: 2, AR176: 2, AR185: 2, AR175: 2, AR288: 2, AR297: 2, AR178: 2, AR285: 2, AR262: 2, AR299: 2, AR236: 2, AR247: 2, AR033: 2, AR316: 2, AR189: 2, AR214: 2, AR309: 2, AR261: 2, AR191: 2, AR181: 2, AR257: 2, AR213: 2, AR174: 2, AR200: 2, AR188: 2, AR294: 2, AR195: 2, AR293: 2, AR240: 2, AR287: 2, AR055: 1, AR168: 1, AR190: 1, AR210: 1, AR229: 1, AR234: 1, AR096: 1, AR199: 1, AR233: 1, AR246: 1, AR104: 1, AR182: 1, AR238: 1, AR267: 1, AR289: 1, AR203: 1, AR283: 1, AR300: 1, AR258: 1, AR266: 1, AR290: 1, AR172: 1, AR291: 1, AR268: 1, H0538: 1
274	HKGAT94 HKGCO27	460631 601969	764 284	
	HKGCO27	581293	765	AR161: 12, AR162: 12, AR163: 12, AR165: 12, AR164: 11, AR166: 11, AR089: 8, AR225: 7, AR178: 6, AR183: 6, AR172: 6, AR300: 5, AR224: 5, AR181: 5, AR221: 5, AR223: 5, AR170: 5, AR299: 5, AR039: 4, AR291: 4, AR096: 4, AR268: 4, AR275: 4, AR286: 4, AR274: 4, AR055: 4, AR247: 4, AR272: 4, AR269: 4, AR258: 4, AR257: 4, AR179: 3, AR240: 3, AR242: 3, AR173: 3, AR182: 3, AR262: 3, AR270: 3, AR272: 3, AR189: 3, AR316: 3, AR267: 3, AR175: 3, AR245: 3, AR313: 3, AR287: 3, AR296: 3, AR231: 2, AR210: 2, AR171: 2, AR190: 2, AR217: 2, AR205: 2, AR277: 2, AR230: 2, AR295: 2, AR290: 2, AR263: 2, AR060: 2, AR309: 2, AR191: 2, AR228: 2, AR229: 2, AR104: 2, AR261: 2, AR288: 2, AR174: 2, AR282: 2, AR246: 2, AR255: 2, AR312: 2, AR237: 2, AR169: 2, AR193: 2, AR271: 2, AR201: 2, AR238: 2, AR239: 2, AR197: 1, AR061: 1, AR226: 1, AR177: 1, AR213: 1, AR195: 1, AR033: 1, AR188: 1, AR238: 1, AR196: 1, AR185: 1, AR293: 1, AR176: 1, AR234: 1, AR227: 1, L0747: 5, L0731: 5, H0031: 4, L0599: 4, S0045: 3.
275	HKGCO27 HKISB57	581293 625956	765 285	

276	HKMLK53	587269	286	<p>H0411: 3, H0494: 3, L0783: 3, L0743: 3, L0758: 3, L0759: 3, L0604: 3, H0295: 2, S0356: 2, S0360: 2, S0046: 2, H0413: 2, L0774: 2, H0651: 2, S0027: 2, L0748: 2, L0439: 2, L0752: 2, L0601: 2, H0484: 1, S0132: 1, H0586: 1, H0333: 1, H0486: 1, H0042: 1, H0122: 1, H0546: 1, H0041: 1, H0050: 1, H0408: 1, H0688: 1, H0424: 1, H0644: 1, H0383: 1, L0772: 1, L0764: 1, L0662: 1, L0653: 1, L0782: 1, L0789: 1, L0666: 1, L0663: 1, L0664: 1, H0144: 1, S0148: 1, H0593: 1, H0666: 1, S0330: 1, S0044: 1, S0037: 1, S014: 1, L0757: 1, S0031: 1, H0667: 1 and H0506: 1.</p> <p>AR221: 7, AR309: 5, AR312: 5, AR053: 5, AR263: 5, AR291: 4, AR308: 4, AR212: 4, AR252: 4, AR205: 4, AR264: 4, AR275: 4, AR253: 4, AR272: 4, AR246: 4, AR311: 3, AR223: 3, AR261: 3, AR172: 3, AR296: 3, AR285: 3, AR183: 3, AR313: 3, AR245: 3, AR201: 3, AR178: 2, AR297: 2, AR165: 2, AR162: 2, AR271: 2, AR295: 2, AR161: 2, AR242: 2, AR164: 2, AR166: 2, AR243: 2, AR282: 2, AR293: 2, AR283: 2, AR060: 2, AR287: 2, AR286: 2, AR286: 2, AR163: 2, AR288: 2, AR266: 2, AR089: 2, AR262: 2, AR096: 2, AR258: 2, AR255: 2, AR196: 2, AR213: 2, AR257: 2, AR316: 2, AR189: 2, AR193: 2, AR191: 2, AR175: 2, AR174: 2, AR190: 2, AR294: 2, AR039: 2, AR218: 2, AR200: 2, AR177: 1, AR195: 1, AR210: 1, AR299: 1, AR230: 1, AR219: 1, AR300: 1, AR188: 1, AR185: 1, AR247: 1, AR217: 1, AR270: 1, AR290: 1, AR289: 1, AR226: 1, AR173: 1, AR268: 1, AR250: 1, L0749: 1, H0144: 2, H0411: 1 and H0431: 1.</p> <p>AR060: 13, AR039: 7, AR282: 7, AR170: 7, AR252: 7, AR263: 7, AR207: 7, AR309: 7, AR299: 6, AR224: 6, AR096: 5, AR161: 5, AR162: 5, AR264: 5, AR163: 5, AR311: 5, AR165: 5, AR214: 5, AR225: 5, AR235: 5, AR164: 5, AR277: 5, AR166: 5, AR308: 5, AR245: 5, AR246: 5, AR217: 5, AR182: 5, AR168: 4, AR283: 4, AR195: 4, AR275: 4, AR316: 4, AR271: 4, AR171: 4, AR312: 4, AR261: 4, AR053: 4, AR212: 4, AR222: 4, AR272: 4, AR270: 4, AR192: 4, AR213: 4, AR274: 4, AR193: 4, AR313: 4, AR173: 4, AR300: 4, AR286: 3, AR175: 3, AR089: 3, AR291: 3, AR180: 3, AR181: 3, AR269: 3, AR288: 3, AR223: 3, AR176: 3, AR169: 3, AR297: 3, AR289: 3, AR250: 3, AR285: 3, AR254: 3, AR201: 3, AR239: 3, AR229: 3, AR267: 3, AR104: 3, AR293: 3, AR198: 3, AR240: 3, AR230: 3, AR205: 3, AR243: 3, AR296: 3, AR196: 3, AR236: 3, AR227: 3, AR247: 3, AR216: 3, AR204: 3, AR172: 3, AR295: 3, AR268: 2, AR199: 2, AR257: 2, AR178: 2, AR055: 2, AR221: 2, AR237: 2, AR234: 2, AR174: 2, AR177: 2, AR287: 2, AR294: 2, AR188: 2, AR033: 2, AR238: 2, AR218: 2, AR231: 2, AR266: 2, AR210: 2, AR226: 2, AR228: 2, AR232: 2, AR185: 2, AR262: 2, AR061: 2, AR255: 2, AR233: 2, AR203: 2, AR191: 2, AR200: 2, AR260: 2, AR290: 2, AR189: 2, AR179: 2, AR258: 2, AR219: 2, AR197: 1, AR242: 1, AR183: 1, AR215: 1, H0620: 7, L3659: 3, S0442: 3, H0036: 3, H0150: 3, S0410: 2, H0722: 2, H0431: 2, H0012: 2, L0774: 2, H0740: 1, H0341: 1, S0358: 1, H0792: 1, H0549: 1, H0590: 1, H0746: 1, H0510: 1, H0059: 1, T0042: 1, L0475: 1, L0803: 1, L0775: 1, H0593: 1, L3215: 1, S0013: 1, L0758: 1 and H0707: 1.</p> <p>AR060: 8, AR161: 4, AR162: 4, AR163: 4, AR182: 4, AR207: 3, AR176: 3, AR264: 3, AR222: 3, AR254: 3, AR186: 3, AR252: 3, AR052: 3, AR272: 3, AR196: 3, AR311: 2, AR291: 2, AR181: 2, AR257: 2, AR273: 2, AR199: 2, AR214: 2, AR184: 2, AR255: 2, AR275: 2, AR265: 2, AR228: 2, AR282: 2, AR236: 2, AR262: 2, AR171: 2, AR274: 2, AR261: 2, AR249: 2, AR233: 2, AR200: 2, AR227: 2, AR287: 2, AR299: 2, AR191: 2, AR266: 2, AR238: 2, AR061: 2, AR190: 2, AR165: 2, AR239: 2, AR033: 2, AR247: 1, AR170: 1, AR277: 1, AR164: 1, AR175: 1, AR296: 1, AR206: 1, AR166: 1, AR039: 1, AR198: 1, AR185: 1, AR172: 1, AR269: 1, AR234: 1, AR089: 1, AR253: 1, AR193: 1, AR312: 1, AR294: 1, AR263: 1, AR096: 1, AR203: 1, AR179: 1, AR204: 1, AR300: 1, AR313: 1, AR240: 1, AR244: 1, AR290: 1, AR173: 1, AR174: 1, AR297: 1, AR267: 1, AR180: 1, AR217: 1, H0549: 1 and H0431: 1.</p>
277	HKMLM11	514788	287	<p>AR060: 13, AR039: 7, AR282: 7, AR170: 7, AR252: 7, AR263: 7, AR207: 7, AR309: 7, AR299: 6, AR224: 6, AR096: 5, AR161: 5, AR162: 5, AR264: 5, AR163: 5, AR311: 5, AR165: 5, AR214: 5, AR225: 5, AR235: 5, AR164: 5, AR277: 5, AR166: 5, AR308: 5, AR245: 5, AR246: 5, AR217: 5, AR182: 5, AR168: 4, AR283: 4, AR195: 4, AR275: 4, AR316: 4, AR271: 4, AR171: 4, AR312: 4, AR261: 4, AR053: 4, AR212: 4, AR222: 4, AR272: 4, AR270: 4, AR192: 4, AR213: 4, AR274: 4, AR193: 4, AR313: 4, AR173: 4, AR300: 4, AR286: 3, AR175: 3, AR089: 3, AR291: 3, AR180: 3, AR181: 3, AR269: 3, AR288: 3, AR223: 3, AR176: 3, AR169: 3, AR297: 3, AR289: 3, AR250: 3, AR285: 3, AR254: 3, AR201: 3, AR239: 3, AR229: 3, AR267: 3, AR104: 3, AR293: 3, AR198: 3, AR240: 3, AR230: 3, AR205: 3, AR243: 3, AR296: 3, AR196: 3, AR236: 3, AR227: 3, AR247: 3, AR216: 3, AR204: 3, AR172: 3, AR295: 3, AR268: 2, AR199: 2, AR257: 2, AR178: 2, AR055: 2, AR221: 2, AR237: 2, AR234: 2, AR174: 2, AR177: 2, AR287: 2, AR294: 2, AR188: 2, AR033: 2, AR238: 2, AR218: 2, AR231: 2, AR266: 2, AR210: 2, AR226: 2, AR228: 2, AR232: 2, AR185: 2, AR262: 2, AR061: 2, AR255: 2, AR233: 2, AR203: 2, AR191: 2, AR200: 2, AR260: 2, AR290: 2, AR189: 2, AR179: 2, AR258: 2, AR219: 2, AR197: 1, AR242: 1, AR183: 1, AR215: 1, H0620: 7, L3659: 3, S0442: 3, H0036: 3, H0150: 3, S0410: 2, H0722: 2, H0431: 2, H0012: 2, L0774: 2, H0740: 1, H0341: 1, S0358: 1, H0792: 1, H0549: 1, H0590: 1, H0746: 1, H0510: 1, H0059: 1, T0042: 1, L0475: 1, L0803: 1, L0775: 1, H0593: 1, L3215: 1, S0013: 1, L0758: 1 and H0707: 1.</p> <p>AR060: 8, AR161: 4, AR162: 4, AR163: 4, AR182: 4, AR207: 3, AR176: 3, AR264: 3, AR222: 3, AR254: 3, AR186: 3, AR252: 3, AR052: 3, AR272: 3, AR196: 3, AR311: 2, AR291: 2, AR181: 2, AR257: 2, AR273: 2, AR199: 2, AR214: 2, AR184: 2, AR255: 2, AR275: 2, AR265: 2, AR228: 2, AR282: 2, AR236: 2, AR262: 2, AR171: 2, AR274: 2, AR261: 2, AR249: 2, AR233: 2, AR200: 2, AR227: 2, AR287: 2, AR299: 2, AR191: 2, AR266: 2, AR238: 2, AR061: 2, AR190: 2, AR165: 2, AR239: 2, AR033: 2, AR247: 1, AR170: 1, AR277: 1, AR164: 1, AR175: 1, AR296: 1, AR206: 1, AR166: 1, AR039: 1, AR198: 1, AR185: 1, AR172: 1, AR269: 1, AR234: 1, AR089: 1, AR253: 1, AR193: 1, AR312: 1, AR294: 1, AR263: 1, AR096: 1, AR203: 1, AR179: 1, AR204: 1, AR300: 1, AR313: 1, AR240: 1, AR244: 1, AR290: 1, AR173: 1, AR174: 1, AR297: 1, AR267: 1, AR180: 1, AR217: 1, H0549: 1 and H0431: 1.</p>
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279	HKMLP68 HKMMD13	583524 604751	767 289	AR252: 8, AR165: 7, AR164: 7, AR166: 7, AR313: 7, AR242: 6, AR053: 6, AR089: 6, AR198: 6, AR161: 5, AR180: 5, AR162: 5, AR163: 5, AR039: 5, AR099: 5, AR271: 5, AR263: 4, AR282: 4, AR192: 4, AR196: 4, AR197: 4, AR201: 4, AR181: 4, AR096: 4, AR266: 4, AR274: 4, AR257: 4, AR176: 4, AR178: 4, AR182: 4, AR254: 4, AR204: 4, AR193: 4, AR229: 4, AR168: 3, AR238: 3, AR060: 3, AR312: 3, AR177: 3, AR300: 3, AR308: 3, AR171: 3, AR237: 3, AR261: 3, AR270: 3, AR293: 3, AR316: 3, AR269: 3, AR183: 3, AR267: 3, AR195: 3, AR239: 3, AR268: 3, AR191: 3, AR255: 3, AR203: 3, AR185: 3, AR226: 3, AR212: 3, AR231: 2, AR234: 2, AR224: 2, AR283: 2, AR240: 2, AR179: 2, AR104: 2, AR236: 2, AR243: 2, AR277: 2, AR262: 2, AR200: 2, AR311: 2, AR169: 2, AR289: 2, AR294: 2, AR285: 2, AR295: 2, AR232: 2, AR213: 2, AR227: 2, AR296: 2, AR055: 2, AR290: 2, AR288: 2, AR189: 2, AR188: 2, AR172: 2, AR033: 2, AR061: 2, AR199: 2, AR175: 2, AR287: 2, AR174: 2, AR272: 2, AR203: 2, AR264: 2, AR217: 2, AR222: 2, AR170: 2, AR291: 2, AR214: 2, AR216: 2, AR258: 1, AR230: 1, AR297: 1, AR286: 1, AR225: 1, AR190: 1, H0431: 1
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287	HLDNA86 HLDON23	535730 636083	771 297	<p>AR235: 6, AR196: 5, AR161: 5, AR162: 5, AR163: 4, AR264: 4, AR176: 4, AR165: 4, AR164: 4, AR238: 4, AR214: 4, AR181: 4, AR166: 4, AR236: 4, AR191: 4, AR253: 4, AR188: 4, AR177: 3, AR261: 3, AR199: 3, AR252: 3, AR178: 3, AR288: 3, AR247: 3, AR033: 3, AR182: 3, AR286: 3, AR190: 3, AR296: 3, AR170: 3, AR269: 3, AR262: 3, AR200: 3, AR242: 3, AR255: 3, AR183: 3, AR295: 3, AR205: 3, AR297: 3, AR224: 3, AR285: 3, AR312: 3, AR287: 3, AR268: 3, AR189: 3, AR257: 3, AR282: 3, AR291: 3, AR175: 3, AR309: 3, AR270: 3, AR171: 3, AR180: 3, AR299: 3, AR293: 2, AR217: 2, AR222: 2, AR179: 2, AR277: 2, AR271: 2, AR229: 2, AR272: 2, AR174: 2, AR240: 2, AR225: 2, AR243: 2, AR173: 2, AR308: 2, AR228: 2, AR289: 2, AR203: 2, AR239: 2, AR254: 2, AR226: 2, AR233: 2, AR213: 2, AR104: 2, AR258: 2, AR290: 2, AR227: 2, AR294: 2, AR267: 2, AR234: 2, AR096: 2, AR169: 2, AR237: 2, AR210: 2, AR231: 2, AR313: 2, AR311: 2, AR218: 2, AR219: 2, AR172: 2, AR275: 2, AR039: 2, AR060: 2, AR316: 2, AR211: 2, AR300: 2,</p>



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289	HLDQC46	847397	299	<p>AR266: 19, AR261: 17, AR291: 17, AR238: 15, AR235: 15, AR283: 13, AR289: 13, AR297: 12, AR039: 12, AR055: 11, AR250: 11, AR183: 11, AR197: 10, AR195: 10, AR165: 10, AR243: 10, AR061: 10, AR253: 10, AR164: 10, AR089: 9, AR166: 9, AR255: 9, AR176: 9, AR174: 9, AR239: 9, AR185: 9, AR242: 9, AR177: 9, AR285: 9, AR175: 8, AR296: 8, AR245: 8, AR295: 8, AR163: 8, AR162: 8, AR256: 8, AR282: 8, AR229: 8, AR257: 8, AR060: 8, AR161: 8, AR271: 8, AR254: 8, AR198: 8, AR269: 8, AR270: 7, AR192: 7, AR215: 7, AR205: 7, AR268: 7, AR178: 7, AR181: 7, AR246: 7, AR219: 7, AR247: 7, AR179: 7, AR227: 7, AR316: 7, AR204: 6, AR288: 6, AR237: 6, AR293: 6, AR173: 6, AR275: 6, AR234: 6, AR262: 6, AR232: 6, AR180: 6, AR201: 6, AR287: 6, AR236: 6, AR231: 6, AR207: 6, AR240: 6, AR226: 6, AR193: 6, AR211: 6, AR218: 6, AR274: 6, AR309: 5, AR191: 5, AR233: 5, AR096: 5, AR182: 5, AR223: 5, AR170: 5, AR104: 5, AR263: 5, AR272: 5, AR286: 5, AR053: 5, AR252: 5, AR221: 5, AR188: 5, AR228: 5, AR267: 5, AR210: 5, AR264: 5, AR299: 5, AR294: 4, AR225: 4, AR300: 4, AR196: 4, AR203: 4, AR290: 4, AR212: 4, AR033: 4, AR199: 4, AR189: 4, AR190: 4, AR311: 4, AR313: 4, AR277: 4, AR200: 4, AR230: 4, AR214: 4, AR216: 4, AR312: 4, AR213: 4, AR217: 3, AR308: 3, AR258: 3, AR169: 3, AR224: 3, AR260: 2, AR171: 2, AR168: 2, H0253: 5, L0758: 3, S0444: 2.</p>

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291	HLDQU79	740755	301	<p>AR253: 8, AR171: 7, AR245: 6, AR243: 5, AR183: 5, AR263: 5, AR264: 4, AR250: 4, AR269: 4, AR060: 4, AR180: 4, AR270: 4, AR309: 4, AR162: 4, AR268: 4, AR161: 4, AR165: 4, AR192: 4, AR176: 4, AR164: 4, AR055: 4, AR163: 4, AR213: 4, AR195: 4, AR271: 4, AR166: 3, AR275: 3, AR240: 3, AR282: 3, AR312: 3, AR246: 3, AR178: 3, AR181: 3, AR311: 3, AR168: 3, AR289: 3, AR182: 3, AR193: 3, AR217: 3, AR179: 3, AR212: 3, AR237: 3, AR238: 3, AR299: 3, AR199: 3, AR252: 3, AR229: 3, AR242: 2, AR185: 2, AR300: 2, AR277: 2, AR175: 2, AR293: 2, AR257: 2, AR308: 2, AR177: 2, AR198: 2, AR061: 2, AR214: 2, AR174: 2, AR104: 2, AR231: 2, AR316: 2, AR201: 2, AR233: 2, AR230: 2, AR224: 2, AR236: 2, AR239: 2, AR228: 2, AR188: 2, AR223: 2, AR189: 2, AR247: 2, AR294: 2, AR226: 2, AR266: 2, AR221: 2, AR285: 2, AR191: 2, AR089: 2, AR216: 2, AR200: 2, AR207: 2, AR272: 2, AR232: 2, AR190: 2, AR290: 2, AR283: 2, AR096: 2, AR222: 2, AR296: 2, AR039: 2, AR267: 2, AR205: 2, AR211: 2, AR196: 1, AR173: 1, AR033: 1, AR218: 1, AR295: 1, AR255: 1, AR262: 1, AR215: 1, AR227: 1, AR234: 1, AR234: 1, AR313: 1, AR203: 1, AR256: 1, AR169: 1, AR225: 1, AR210: 1, AR170: 1, L0748: 9, L0731: 7, L0771: 6, L0759: 6, H0013: 5, L0764: 4, L0747: 4, L0758: 4, H0265: 3, H0039: 3, H0038: 3, L0769: 3, L0755: 3, H0144: 3, L0755: 3, S0444: 2, S0476: 2, H0318: 2, H0050: 2, L0471: 2, H0266: 2, L0374: 2, L0649: 2, L0805: 2, L0663: 2, L0664: 2, H0547: 2, S0126: 2, H0670: 2, L0740: 2, L0754: 2.</p>

292	HLD RM43	846330	302	2, L0750: 2, L0593: 2, H0667: 2, H0170: 1, H0171: 1, H0685: 1, H0662: 1, S0354: 1, S0360: 1, H0580: 1, H0728: 1, H0151: 1, H0747: 1, L3388: 1, H0357: 1, H0331: 1, H0574: 1, H0635: 1, H0575: 1, H0263: 1, H0596: 1, H0545: 1, H0012: 1, H0620: 1, H0350: 1, H0355: 1, H0510: 1, H0428: 1, H0604: 1, H0031: 1, H0553: 1, S0366: 1, H0040: 1, H0063: 1, H0059: 1, H0560: 1, H0561: 1, S0440: 1, S0422: 1, H0529: 1, L0640: 1, L0637: 1, L0761: 1, L0772: 1, L0646: 1, L4556: 1, L0774: 1, L0375: 1, L0653: 1, L0382: 1, L5622: 1, L0793: 1, L4501: 1, H0723: 1, L0352: 1, S0152: 1, S0350: 1, H0521: 1, H0696: 1, S0044: 1, H0627: 1, S0027: 1, L0749: 1, L0752: 1, H0595: 1, S0436: 1, L0591: 1, L0595: 1, L0361: 1, S0011: 1, S0194: 1, S0276: 1 and H0423: 1. AR060: 31, AR185: 19, AR055: 19, AR283: 17, AR299: 16, AR282: 14, AR104: 11, AR089: 10, AR316: 9, AR277: 9, AR300: 8, AR096: 6, AR240: 6, AR039: 5, AR219: 5, AR313: 4, AR218: 3, S0410: 26, S0444: 6, S0358: 4, S0440: 4, L0748: 4, H0661: 3, S0442: 3, S0408: 3, H0393: 3, H0574: 3, S0438: 3, H0509: 3, S0406: 3, S0360: 2, H0510: 2, L0764: 2, S0374: 2, H0742: 1, H0730: 1, H0722: 1, H0331: 1, H0204: 1, H0150: 1, H0615: 1, H0059: 1, L0772: 1, L0648: 1, L0803: 1, L0774: 1 and L0791: 1.
293	HLD RM43 HLD RP33	638939 647430	772 303	AR241: 11, AR184: 11, AR196: 11, AR242: 9, AR165: 9, AR164: 9, AR166: 8, AR161: 8, AR162: 8, AR163: 8, AR313: 8, AR173: 8, AR229: 7, AR192: 6, AR183: 6, AR199: 6, AR180: 6, AR262: 6, AR198: 6, AR203: 5, AR265: 5, AR264: 5, AR247: 5, AR238: 5, AR191: 5, AR181: 5, AR250: 5, AR178: 5, AR240: 5, AR053: 5, AR257: 5, AR175: 5, AR177: 5, AR293: 5, AR212: 5, AR299: 5, AR258: 5, AR182: 5, AR269: 4, AR200: 4, AR089: 4, AR292: 4, AR176: 4, AR226: 4, AR174: 4, AR206: 4, AR297: 4, AR193: 4, AR189: 4, AR296: 4, AR171: 4, AR312: 4, AR213: 4, AR204: 4, AR197: 4, AR243: 4, AR300: 4, AR223: 4, AR234: 4, AR270: 4, AR236: 4, AR195: 4, AR179: 4, AR230: 4, AR248: 4, AR294: 4, AR268: 3, AR228: 3, AR282: 3, AR233: 3, AR310: 3, AR235: 3, AR261: 3, AR185: 3, AR052: 3, AR286: 3, AR275: 3, AR285: 3, AR231: 3, AR237: 3, AR295: 3, AR277: 3, AR315: 3, AR188: 3, AR309: 3, AR311: 3, AR284: 3, AR290: 3, AR227: 3, AR224: 3, AR186: 3, AR202: 3, AR308: 3, AR215: 3, AR255: 3, AR274: 3, AR239: 3, AR266: 3, AR033: 3, AR314: 3, AR096: 3, AR298: 3, AR289: 3, AR267: 3, AR190: 3, AR291: 3, AR207: 3, AR039: 2, AR288: 2, AR316: 2, AR251: 2, AR225: 2, AR263: 2, AR218: 2, AR287: 2, AR260: 2, AR060: 2, AR221: 2, AR217: 2, AR232: 2, AR222: 2, AR272: 2, AR253: 2, AR104: 2, AR055: 2, AR216: 2, AR271: 2, AR219: 2, AR061: 1, AR194: 1, AR210: 1, AR280: 1, AR259: 1, AR245: 1, AR283: 1, AR256: 1, S0222: 1 and H0510: 1. AR194: 6, AR186: 6, AR169: 6, AR170: 5, AR202: 5, AR060: 5, AR184: 5, AR176: 5, AR273: 4, AR249: 4, AR248: 4, AR223: 4, AR161: 4, AR055: 4, AR162: 4, AR251: 4, AR163: 4, AR061: 4, AR282: 4, AR244: 4, AR052: 4, AR310: 4, AR053: 4, AR267: 4, AR253: 3, AR235: 3, AR183: 3, AR269: 3, AR182: 3, AR312: 3, AR204: 3, AR266: 3, AR192: 3, AR246: 3, AR275: 3, AR270: 3, AR104: 3, AR185: 3, AR298: 3, AR089: 3, AR295: 3, AR241: 3, AR271: 3, AR309: 3, AR181: 3, AR166: 3, AR291: 3, AR263: 3, AR257: 3, AR217: 3, AR289: 3, AR296: 3, AR033: 3, AR238: 3, AR283: 3, AR277: 3, AR292: 3, AR205: 2, AR247: 2, AR299: 2, AR193: 2, AR231: 2, AR213: 2, AR268: 2, AR168: 2, AR284: 2, AR262: 2, AR237: 2, AR212: 2, AR243: 2, AR274: 2, AR297: 2, AR300: 2, AR286: 2, AR228: 2, AR240: 2, AR233: 2, AR272: 2, AR285: 2, AR316: 2, AR165: 2, AR229: 2, AR096: 2, AR226: 2, AR293: 2, AR313: 2, AR255: 2, AR294: 2, AR191: 2, AR290: 2, AR164: 2, AR172: 2, AR264: 2, AR227: 2, AR174: 2, AR039: 2, AR287: 2, AR198: 2, AR265: 2, AR232: 2, AR171: 2, AR216: 2, AR177: 2, AR311: 1, AR234: 1, AR175: 1, AR239: 1, AR203: 1, AR236: 1,
294	HLD HFP03	460467	304	

295	HLHFR58	919888	305	AR230: 1, AR218: 1, AR196: 1, AR261: 1, AR260: 1, AR259: 1, AR201: 1, AR189: 1, AR179: 1, L0742: 4 and H0024: 1, AR299: 13, AR242: 8, AR192: 7, AR176: 7, AR300: 6, AR246: 6, AR180: 6, AR204: 6, AR039: 6, AR193: 6, AR161: 6, AR162: 6, AR268: 6, AR163: 6, AR207: 6, AR282: 5, AR266: 5, AR229: 5, AR181: 5, AR245: 5, AR247: 5, AR267: 5, AR171: 5, AR178: 5, AR269: 5, AR228: 5, AR165: 5, AR177: 5, AR201: 5, AR274: 5, AR198: 4, AR164: 4, AR272: 4, AR271: 4, AR196: 4, AR182: 4, AR233: 4, AR261: 4, AR183: 4, AR270: 4, AR166: 4, AR197: 4, AR257: 4, AR173: 4, AR239: 4, AR238: 4, AR053: 4, AR236: 4, AR293: 4, AR243: 4, AR237: 3, AR254: 3, AR179: 3, AR205: 3, AR289: 3, AR061: 3, AR224: 3, AR264: 3, AR234: 3, AR240: 3, AR291: 3, AR175: 3, AR213: 3, AR189: 3, AR225: 3, AR231: 3, AR275: 3, AR230: 3, AR174: 3, AR191: 3, AR188: 3, AR255: 3, AR290: 3, AR313: 3, AR190: 3, AR296: 3, AR222: 3, AR195: 3, AR294: 3, AR199: 3, AR226: 3, AR096: 2, AR214: 2, AR286: 2, AR277: 2, AR262: 2, AR203: 2, AR295: 2, AR200: 2, AR285: 2, AR287: 2, AR089: 2, AR060: 2, AR312: 2, AR316: 2, AR297: 2, AR033: 2, AR232: 2, AR185: 2, AR221: 2, AR212: 2, AR288: 2, AR216: 1, AR311: 1, AR308: 1, AR258: 1, AR277: 1, AR217: 1, AR172: 1, AR211: 1, AR219: 1, AR055: 1, AR235: 1, H0250: 110, H0556: 63, H0271: 38, H0265: 19, H0109: 17, H0635: 16, H0069: 15, S0216: 15, H0060: 14, H0634: 14, S0052: 14, S0428: 8, H0140: 7, H0657: 7, H0416: 7, L0803: 7, S0053: 7, H0141: 6, H0247: 6, S0002: 6, H0638: 5, H0223: 4, H0222: 4, S0280: 4, H0061: 4, L0794: 4, H0521: 4, L0748: 4, H0220: 3, H0159: 3, H0585: 3, L3658: 3, H0192: 3, H0190: 3, H0575: 3, H0024: 3, L0775: 3, L0809: 3, H0225: 2, L3659: 2, S6022: 2, H0075: 2, H0090: 2, L0804: 2, L0655: 2, H0539: 2, L0755: 2, L0362: 2, H0423: 2, H0422: 2, H0224: 1, H0139: 1, H0158: 1, S0114: 1, H0254: 1, S0360: 1, L3646: 1, L3649: 1, H0369: 1, N0009: 1, H0581: 1, H0123: 1, H0242: 1, H0014: 1, H0076: 1, H0179: 1, T0023: 1, L0055: 1, H0032: 1, H0598: 1, H0591: 1, H0116: 1, H0056: 1, S0438: 1, S0440: 1, S0144: 1, L0764: 1, L0773: 1, L0776: 1, L0805: 1, L0657: 1, L0789: 1, L0791: 1, H0701: 1, H0724: 1, H0710: 1, H0518: 1, H0134: 1, S0406: 1, H0555: 1, L0749: 1, L0777: 1, L0752: 1, L0753: 1, H0707: 1, S0434: 1 and H0008: 1.
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	HLHFR58	897241	774	
	HLHFR58	894001	775	
296	HLIBD68	778073	306	AR253: 19, AR313: 9, AR212: 8, AR312: 7, AR053: 7, AR250: 7, AR264: 6, AR161: 6, AR162: 6, AR263: 6, AR309: 6, AR163: 6, AR165: 6, AR197: 6, AR096: 6, AR166: 6, AR164: 6, AR089: 6, AR173: 6, AR180: 6, AR178: 5, AR198: 5, AR240: 5, AR213: 5, AR221: 4, AR308: 4, AR311: 4, AR300: 4, AR175: 4, AR229: 4, AR269: 4, AR181: 4, AR242: 4, AR274: 4, AR247: 4, AR168: 4, AR257: 4, AR193: 4, AR177: 4, AR192: 4, AR183: 4, AR195: 4, AR235: 3, AR270: 3, AR262: 3, AR266: 3, AR282: 3, AR316: 3, AR225: 3, AR060: 3, AR196: 3, AR275: 3, AR299: 3, AR182: 3, AR277: 3, AR245: 3, AR293: 3, AR207: 3, AR174: 3, AR234: 3, AR179: 3, AR296: 3, AR261: 3, AR238: 3, AR233: 3, AR185: 3, AR218: 3, AR258: 3, AR268: 3, AR295: 3, AR205: 3, AR226: 3, AR219: 3, AR271: 3, AR236: 3, AR289: 3, AR234: 2, AR224: 2, AR267: 2, AR201: 2, AR297: 2, AR287: 2, AR033: 2, AR188: 2, AR191: 2, AR189: 2, AR286: 2, AR231: 2, AR230: 2, AR255: 2, AR237: 2, AR291: 2, AR200: 2, AR246: 2, AR288: 2, AR272: 2, AR203: 2, AR239: 2, AR285: 2, AR190: 2, AR290: 2, AR227: 2, AR204: 2, AR222: 2, AR243: 2, AR228: 2, AR104: 2, AR055: 1, AR216: 1, AR171: 1, AR294: 1, AR170: 1, AR172: 1, AR217: 1, AR211: 1, L0157: 7, L0794: 6, H0040: 4, L0439: 4, L0758: 4, H0556: 3, L0803: 3, L0005: 2, L0471: 2, H0059: 2, T0004: 2, L0769: 2, L0767: 2, L0805: 2, T0002: 1, H0685: 1, S0134: 1, S0110: 1, H0176: 1, S0356: 1, S0222: 1, H0441: 1, H0370: 1, H0486: 1, H0014: 1, H0083: 1, H0355: 1, H0286: 1, H0606: 1.

297	HLICQ90	791828	307	<p>H0163: 1, H0090: 1, H0561: 1, L0521: 1, L0766: 1, L0774: 1, L0809: 1, L0788: 1, L0665: 1, H0539: 1, H0696: 1, L0748: 1, L0749: 1, L0777: 1, H0543: 1 and H0423: 1.</p> <p>AR263: 79, AR264: 68, AR252: 65, AR246: 63, AR311: 60, AR308: 54, AR053: 52, AR309: 51, AR312: 46, AR212: 41, AR205: 40, AR250: 39, AR213: 38, AR096: 37, AR245: 36, AR218: 36, AR219: 36, AR243: 35, AR039: 32, AR197: 29, AR240: 26, AR198: 25, AR201: 24, AR274: 22, AR200: 22, AR313: 22, AR271: 21, AR195: 20, AR242: 18, AR221: 18, AR224: 18, AR174: 18, AR275: 18, AR165: 18, AR316: 17, AR164: 17, AR185: 17, AR104: 17, AR189: 17, AR290: 17, AR222: 17, AR210: 16, AR223: 16, AR269: 16, AR033: 16, AR188: 16, AR268: 16, AR253: 16, AR211: 16, AR166: 15, AR192: 15, AR295: 15, AR193: 14, AR173: 14, AR196: 14, AR089: 14, AR175: 14, AR296: 14, AR199: 14, AR172: 14, AR162: 13, AR161: 13, AR270: 13, AR190: 13, AR180: 13, AR225: 13, AR177: 13, AR183: 13, AR291: 12, AR299: 12, AR235: 12, AR285: 12, AR163: 12, AR191: 12, AR247: 12, AR266: 12, AR171: 12, AR178: 11, AR289: 11, AR288: 11, AR060: 11, AR286: 11, AR204: 11, AR300: 11, AR297: 11, AR267: 10, AR282: 10, AR287: 10, AR255: 10, AR168: 10, AR261: 10, AR257: 10, AR283: 9, AR262: 9, AR203: 9, AR238: 9, AR215: 9, AR214: 9, AR179: 9, AR170: 8, AR181: 8, AR256: 8, AR293: 8, AR231: 8, AR229: 7, AR260: 7, AR277: 7, AR182: 7, AR258: 7, AR176: 7, AR234: 7, AR226: 6, AR294: 6, AR237: 6, AR055: 6, AR169: 5, AR230: 5, AR217: 5, AR232: 5, AR216: 4, AR239: 4, AR061: 4, AR233: 4, AR227: 3, AR228: 3, H0046: 10, L0748: 6, L0758: 3, L0776: 2, L0742: 2, L0744: 2, L0750: 2, S0444: 1, S0360: 1, H0619: 1, L0717: 1, H0331: 1, H0013: 1, H0235: 1, H0355: 1, H0687: 1, H0674: 1, H0038: 1, H0623: 1, L0805: 1, L0809: 1, L0789: 1, L0666: 1, L0663: 1, S0428: 1, H0520: 1, H0539: 1, S0404: 1, L0740: 1, L0749: 1, L0756: 1, S0031: 1, S0026: 1 and H0008: 1.</p> <p>AR169: 5, AR204: 5, AR264: 5, AR235: 5, AR176: 4, AR263: 4, AR269: 4, AR161: 4, AR217: 4, AR163: 4, AR162: 4, AR309: 4, AR181: 4, AR183: 3, AR272: 3, AR268: 3, AR214: 3, AR225: 3, AR196: 3, AR197: 3, AR191: 3, AR257: 3, AR261: 3, AR188: 3, AR216: 3, AR285: 3, AR238: 3, AR182: 3, AR288: 3, AR274: 3, AR267: 3, AR313: 3, AR189: 3, AR294: 3, AR258: 3, AR282: 3, AR178: 3, AR236: 3, AR262: 2, AR172: 2, AR165: 2, AR255: 2, AR308: 2, AR289: 2, AR270: 2, AR287: 2, AR164: 2, AR297: 2, AR290: 2, AR262: 2, AR229: 2, AR166: 2, AR173: 2, AR199: 2, AR228: 2, AR312: 2, AR230: 2, AR177: 2, AR266: 2, AR240: 2, AR239: 2, AR033: 2, AR190: 2, AR193: 2, AR293: 2, AR233: 2, AR171: 2, AR291: 2, AR286: 2, AR174: 2, AR200: 2, AR175: 2, AR179: 2, AR203: 2, AR053: 2, AR237: 2, AR226: 2, AR168: 2, AR316: 2, AR055: 2, AR104: 2, AR231: 2, AR300: 2, AR295: 2, AR195: 2, AR234: 2, AR089: 2, AR247: 2, AR222: 2, AR221: 2, AR060: 2, AR311: 2, AR211: 1, AR096: 1, AR201: 1, AR232: 1, AR205: 1, AR218: 1, AR260: 1, AR219: 1, AR039: 1, AR212: 1, AR256: 1, AR185: 1, AR277: 1, AR061: 1, L0439: 6, S0410: 3, L0794: 2, H0255: 1, H0163: 1, H0745: 1, L0796: 1, L0662: 1, L0776: 1, L0666: 1, L0438: 1, L0352: 1, H0659: 1, H0521: 1 and L0755: 1.</p> <p>AR198: 7, AR207: 7, AR235: 7, AR163: 7, AR161: 7, AR162: 7, AR228: 6, AR169: 6, AR250: 6, AR233: 5, AR176: 5, AR269: 5, AR214: 5, AR236: 5, AR229: 5, AR182: 5, AR181: 5, AR053: 5, AR197: 5, AR231: 5, AR201: 5, AR268: 4, AR257: 4, AR178: 4, AR267: 4, AR177: 4, AR239: 4, AR288: 4, AR224: 4, AR252: 4, AR191: 4, AR266: 4, AR261: 4, AR274: 4, AR243: 4, AR204: 4, AR271: 4, AR192: 4, AR294: 4, AR165: 4, AR255: 4, AR175: 4, AR262: 4, AR183: 4, AR234: 4, AR205: 4, AR179: 4, AR275: 4, AR166: 4, AR164: 3, AR238: 3, AR196: 3, AR296: 3, AR287: 3, AR173: 3, AR293: 3, AR180: 3, AR270: 3, AR237: 3, AR285: 3, AR200: 3, AR174: 3, AR190: 3, AR168: 3, AR286: 3, AR173: 3.</p>
298	HLMBO76	626831	308	<p>AR169: 5, AR204: 5, AR264: 5, AR235: 5, AR176: 4, AR263: 4, AR269: 4, AR161: 4, AR217: 4, AR163: 4, AR162: 4, AR309: 4, AR181: 4, AR183: 3, AR272: 3, AR268: 3, AR214: 3, AR225: 3, AR196: 3, AR197: 3, AR191: 3, AR257: 3, AR261: 3, AR188: 3, AR216: 3, AR285: 3, AR238: 3, AR182: 3, AR288: 3, AR274: 3, AR267: 3, AR313: 3, AR189: 3, AR294: 3, AR258: 3, AR282: 3, AR178: 3, AR236: 3, AR262: 2, AR172: 2, AR165: 2, AR255: 2, AR308: 2, AR289: 2, AR270: 2, AR287: 2, AR164: 2, AR297: 2, AR290: 2, AR262: 2, AR229: 2, AR166: 2, AR173: 2, AR199: 2, AR228: 2, AR312: 2, AR230: 2, AR177: 2, AR266: 2, AR240: 2, AR239: 2, AR033: 2, AR190: 2, AR193: 2, AR293: 2, AR233: 2, AR171: 2, AR291: 2, AR286: 2, AR174: 2, AR200: 2, AR175: 2, AR179: 2, AR203: 2, AR053: 2, AR237: 2, AR226: 2, AR168: 2, AR316: 2, AR055: 2, AR104: 2, AR231: 2, AR300: 2, AR295: 2, AR195: 2, AR234: 2, AR089: 2, AR247: 2, AR222: 2, AR221: 2, AR060: 2, AR311: 2, AR211: 1, AR096: 1, AR201: 1, AR232: 1, AR205: 1, AR218: 1, AR260: 1, AR219: 1, AR039: 1, AR212: 1, AR256: 1, AR185: 1, AR277: 1, AR061: 1, L0439: 6, S0410: 3, L0794: 2, H0255: 1, H0163: 1, H0745: 1, L0796: 1, L0662: 1, L0776: 1, L0666: 1, L0438: 1, L0352: 1, H0659: 1, H0521: 1 and L0755: 1.</p>
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306	HLTHG37	787530	316	<p>AR287: 1, AR256: 1, AR061: 1, AR227: 1, AR222: 1, AR180: 1, AR219: 1, AR255: 1, AR171: 1, L0748: 5, H0622: 3, L0659: 3, H0670: 3, S0408: 2, H0606: 2, L0646: 2, L0771: 2, L0774: 2, L0666: 2, L0749: 2, H0295: 1, H0484: 1, S0358: 1, S0410: 1, L0730: 1, L3281: 1, H0549: 1, H0250: 1, H0581: 1, H0057: 1, H0510: 1, H0090: 1, L0770: 1, L0639: 1, L0372: 1, L0643: 1, L0374: 1, L0648: 1, L0521: 1, L0662: 1, L0794: 1, L0649: 1, L0560: 1, L0806: 1, L0805: 1, L0527: 1, L0657: 1, L0783: 1, L0383: 1, L0790: 1, L0665: 1, L2257: 1, S0378: 1, L0602: 1, S0406: 1, S014: 1, L0756: 1, L0777: 1, L0755: 1, L0596: 1, L0485: 1, L0601: 1, S0424: 1 and H0352: 1.</p> <p>AR161: 12, AR162: 12, AR163: 11, AR290: 10, AR176: 9, AR176: 8, AR241: 7, AR254: 7, AR268: 7, AR252: 7, AR180: 7, AR267: 7, AR235: 7, AR182: 7, AR270: 7, AR172: 6, AR165: 6, AR190: 6, AR164: 6, AR173: 6, AR236: 6, AR249: 6, AR166: 6, AR218: 6, AR183: 6, AR275: 6, AR181: 6, AR228: 6, AR250: 6, AR215: 6, AR178: 6, AR174: 5, AR251: 5, AR191: 5, AR293: 5, AR189: 5, AR231: 5, AR186: 5, AR263: 5, AR310: 5, AR210: 5, AR188: 5, AR274: 5, AR224: 5, AR175: 5, AR238: 5, AR171: 5, AR239: 5, AR253: 5, AR299: 5, AR246: 5, AR233: 5, AR255: 5, AR244: 5, AR205: 5, AR261: 4, AR272: 4, AR262: 4, AR206: 4, AR219: 4, AR264: 4, AR089: 4, AR198: 4, AR288: 4, AR257: 4, AR271: 4, AR168: 4, AR053: 4, AR311: 4, AR312: 4, AR289: 4, AR201: 4, AR291: 4, AR284: 4, AR216: 4, AR243: 4, AR177: 4, AR248: 4, AR196: 4, AR282: 4, AR200: 4, AR199: 4, AR223: 4, AR195: 4, AR226: 4, AR229: 4, AR203: 4, AR237: 4, AR313: 4, AR192: 4, AR104: 4, AR294: 4, AR273: 4, AR297: 4, AR207: 4, AR298: 4, AR295: 4, AR169: 3, AR217: 3, AR287: 3, AR266: 3, AR222: 3, AR184: 3, AR052: 3, AR240: 3, AR061: 3, AR033: 3, AR179: 3, AR265: 3, AR300: 3, AR242: 3, AR232: 3, AR213: 3, AR234: 3, AR230: 3, AR286: 3, AR316: 3, AR285: 3, AR185: 3, AR060: 3, AR309: 3, AR096: 3, AR277: 3, AR280: 3, AR197: 3, AR260: 3, AR296: 3, AR204: 3, AR258: 3, AR227: 3, AR292: 3, AR247: 3, AR211: 2, AR214: 2, AR212: 2, AR039: 2, AR055: 2, AR256: 2, AR308: 2, AR225: 2, AR170: 2, AR281: 2, AR259: 2, AR314: 1, AR315: 1, L0439: 6, L0749: 4, H0144: 3, L0438: 3, L0754: 3, H0251: 2, H0591: 2, H0561: 2, L0770: 2, S0126: 2, S0136: 2, L0751: 2, L0756: 2, L0755: 2, H0740: 1, S0282: 1, S0355: 1, S0376: 1, S0360: 1, H0580: 1, S0046: 1, H0351: 1, S0222: 1, H0438: 1, H0586: 1, H0587: 1, H0486: 1, L0021: 1, H0570: 1, S0003: 1, H0328: 1, H0428: 1, T0023: 1, H0628: 1, H0032: 1, H0040: 1, T0067: 1, H0268: 1, H0412: 1, H0413: 1, S0210: 1, L0662: 1, L0803: 1, L0606: 1, L0659: 1, L0789: 1, L0663: 1, S0428: 1, H0689: 1, H0435: 1, S0380: 1, H0555: 1, L0745: 1, L0747: 1, L0750: 1, L0779: 1, L0758: 1, L0759: 1, S0260: 1, L0608: 1 and S0412: 1.</p>
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308	HLWAA88	588485	318	<p>AR204: 1, AR233: 1, AR199: 1, AR179: 1, AR173: 1, AR200: 1, AR258: 1, AR210: 1, AR252: 1, AR168: 1, AR256: 1, AR194: 1, AR255: 1, AR236: 1, S0410: 24, L0748: 18, S0436: 12, H0347: 8, H0556: 7, H0039: 6, L0666: 6, H0046: 5, H0059: 5, L0775: 5, L0439: 5, L0755: 5, H0622: 4, L0662: 4, L0740: 4, L0751: 4, L0779: 4, H0575: 3, H0553: 3, H0529: 3, L0769: 3, L0659: 3, L5623: 3, L0593: 3, S0011: 3, H0235: 2, S0418: 2, S0442: 2, S0046: 2, H0586: 2, S0049: 2, H0424: 2, H0644: 2, H0560: 2, H0561: 2, S0002: 2, S0426: 2, L0763: 2, L0772: 2, L0646: 2, L0655: 2, L0527: 2, L0518: 2, L0783: 2, L0809: 2, L0665: 2, L0438: 2, H0519: 2, H0689: 2, H0672: 2, H0555: 2, H0631: 2, S0206: 2, L0757: 2, L0758: 2, L0485: 2, L0608: 2, L0601: 2, H0543: 2, H0171: 1, H0265: 1, S0040: 1, H0294: 1, T0049: 1, S0134: 1, H0583: 1, H0657: 1, H0484: 1, H0661: 1, H0125: 1, S0420: 1, S0354: 1, S0358: 1, S0360: 1, S0408: 1, H0580: 1, H0742: 1, S0132: 1, S0476: 1, H0550: 1, H0431: 1, H0592: 1, H0587: 1, H0333: 1, H0270: 1, H0013: 1, H0599: 1, T0082: 1, H0318: 1, H0251: 1, T0110: 1, H0545: 1, H0150: 1, H0041: 1, H0620: 1, H0024: 1, H0057: 1, H0014: 1, S0051: 1, H0083: 1, S0024: 1, H0355: 1, H0266: 1, H0271: 1, H0188: 1, S0250: 1, H0328: 1, H0615: 1, L0483: 1, H0030: 1, H0031: 1, H0111: 1, H0032: 1, H0383: 1, H0674: 1, H0211: 1, L0456: 1, H0068: 1, H0135: 1, H0040: 1, H0634: 1, H0551: 1, H0412: 1, S0450: 1, H0647: 1, H0646: 1, S0144: 1, S0142: 1, S0344: 1, S0210: 1, L0761: 1, L0372: 1, L0764: 1, L0767: 1, L0768: 1, L0649: 1, L5574: 1, L0375: 1, L0651: 1, L0784: 1, L0654: 1, L0807: 1, L0515: 1, L0658: 1, L0383: 1, L0663: 1, L0664: 1, S0006: 1, H0520: 1, H0593: 1, H0682: 1, H0684: 1, H0658: 1, H0670: 1, H0696: 1, S0406: 1, S0027: 1, L0754: 1, L0747: 1, L0750: 1, L0752: 1, S0434: 1, L0591: 1, L0603: 1, S0106: 1, H0668: 1, H0542: 1 and H0423: 1.</p>
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309	HLWAD77	653513	319	<p>AR263: 12, AR219: 10, AR269: 10, AR184: 10, AR089: 10, AR290: 9, AR218: 9, AR238: 9, AR291: 9, AR282: 9, AR241: 8, AR296: 8, AR248: 8, AR268: 8, AR183: 8, AR096: 8, AR039: 8, AR277: 8, AR231: 8, AR299: 7, AR312: 7, AR316: 7, AR060: 7, AR053: 7, AR185: 7, AR313: 7, AR182: 7, AR251: 7, AR237: 6, AR192: 6, AR192: 6, AR309: 6, AR253: 6, AR314: 6, AR270: 6, AR249: 6, AR274: 6, AR266: 5, AR243: 5, AR243: 5, AR104: 5, AR186: 5, AR300: 5, AR052: 5, AR213: 5, AR265: 5, AR285: 5, AR226: 5, AR273: 5, AR298: 5, AR229: 5, AR292: 5, AR310: 4, AR267: 4, AR275: 4,</p>

310	HLWAE11	783071	320	<p>AR247: 4, AR206: 4, AR232: 4, AR280: 4, AR284: 4, AR289: 4, AR175: 4, AR246: 4, AR033: 3, AR315: 3, AR256: 3, AR055: 3, AR283: 3, AR286: 3, AR294: 3, AR295: 3, AR198: 3, AR227: 3, AR293: 3, AR233: 2, AR205: 2, AR061: 2, AR179: 2, AR177: 2, AR194: 2, AR281: 2, AR259: 2, AR258: 2, L0748: 10, L0759: 6, S0436: 4, S0007: 3, S0126: 3, H0659: 3, S0028: 3, L0439: 3, L0740: 3, L0777: 3, L0755: 3, S0376: 2, H0250: 2, H0046: 2, H0673: 2, H0038: 2, H0412: 2, H0494: 2, H0529: 2, L0770: 2, L0768: 2, L0766: 2, L0805: 2, L0745: 2, L0750: 2, L0779: 2, L0757: 2, T0002: 1, L3642: 1, L3643: 1, H0583: 1, S0116: 1, H0341: 1, S0358: 1, S0444: 1, S0360: 1, L3645: 1, L3649: 1, H0580: 1, S0045: 1, S0476: 1, H0261: 1, H0642: 1, H0574: 1, H0485: 1, H0486: 1, T0040: 1, L3655: 1, H0599: 1, H0581: 1, H0052: 1, H0251: 1, T0110: 1, H0150: 1, H0083: 1, H0266: 1, H0687: 1, S0214: 1, H0553: 1, H0372: 1, H0616: 1, H0100: 1, S0112: 1, S0438: 1, S0150: 1, H0641: 1, S0142: 1, L0764: 1, L0767: 1, L0806: 1, L0653: 1, L0776: 1, L0791: 1, L0666: 1, L0665: 1, S0428: 1, L0438: 1, H0689: 1, H0435: 1, H0660: 1, H0648: 1, S0328: 1, S0330: 1, H0539: 1, L0602: 1, S0152: 1, H0522: 1, S0406: 1, S0027: 1, L0753: 1, L0731: 1, L0758: 1, S0434: 1, S0276: 1, S0196: 1 and H0423: 1.</p> <p>AR242: 67, AR192: 47, AR164: 43, AR173: 37, AR165: 37, AR161: 36, AR195: 36, AR313: 35, AR162: 35, AR198: 34, AR166: 33, AR204: 32, AR212: 32, AR193: 30, AR163: 30, AR197: 29, AR277: 28, AR275: 28, AR245: 27, AR213: 26, AR243: 26, AR207: 26, AR053: 26, AR312: 25, AR297: 25, AR299: 25, AR264: 24, AR254: 24, AR191: 23, AR247: 23, AR308: 23, AR205: 22, AR274: 21, AR189: 21, AR263: 21, AR311: 21, AR271: 20, AR039: 19, AR104: 19, AR201: 19, AR240: 19, AR300: 19, AR199: 18, AR246: 17, AR188: 17, AR089: 17, AR309: 17, AR253: 16, AR272: 15, AR252: 15, AR282: 14, AR185: 14, AR033: 13, AR250: 12, AR096: 12, AR316: 12, AR203: 12, AR190: 11, AR176: 11, AR175: 10, AR214: 10, AR060: 10, AR258: 9, AR177: 9, AR168: 9, AR270: 8, AR283: 8, AR180: 8, AR174: 8, AR217: 8, AR235: 7, AR196: 7, AR293: 7, AR216: 7, AR170: 7, AR262: 7, AR171: 7, AR181: 7, AR236: 7, AR169: 6, AR229: 6, AR297: 6, AR224: 6, AR268: 6, AR286: 6, AR295: 6, AR261: 6, AR172: 6, AR178: 5, AR222: 5, AR238: 5, AR285: 5, AR223: 5, AR221: 5, AR269: 5, AR183: 5, AR179: 5, AR234: 5, AR289: 5, AR055: 5, AR288: 5, AR237: 5, AR233: 5, AR215: 5, AR296: 5, AR200: 5, AR255: 4, AR061: 4, AR287: 4, AR294: 4, AR226: 4, AR225: 4, AR230: 4, AR231: 4, AR291: 4, AR290: 4, AR182: 4, AR239: 4, AR266: 3, AR227: 3, AR211: 3, AR228: 3, AR210: 3, AR256: 3, AR260: 3, AR219: 3, AR267: 3, AR232: 3, AR218: 2, H0056: 2, H0050: 1, H0266: 1, H0553: 1, H0521: 1 and L0748: 1.</p> <p>AR214: 8, AR217: 6, AR222: 5, AR215: 5, AR221: 5, AR172: 5, AR309: 4, AR275: 4, AR163: 4, AR161: 4, AR162: 4, AR170: 4, AR224: 4, AR171: 4, AR165: 4, AR253: 3, AR225: 3, AR164: 3, AR166: 3, AR223: 3, AR263: 3, AR169: 3, AR311: 3, AR264: 3, AR197: 3, AR216: 3, AR271: 3, AR183: 3, AR308: 3, AR053: 3, AR096: 3, AR291: 3, AR296: 3, AR312: 3, AR245: 2, AR289: 2, AR104: 2, AR240: 2, AR316: 2, AR300: 2, AR269: 2, AR196: 2, AR272: 2, AR247: 2, AR185: 2, AR176: 2, AR177: 2, AR178: 2, AR213: 2, AR192: 2, AR181: 2, AR277: 2, AR234: 2, AR205: 2, AR229: 2, AR282: 2, AR055: 2, AR061: 2, AR274: 2, AR243: 2, AR060: 2, AR212: 2, AR226: 2, AR257: 2, AR313: 2, AR231: 2, AR255: 2, AR268: 2, AR089: 2, AR179: 2, AR287: 2, AR261: 2, AR203: 2, AR233: 1, AR283: 1, AR290: 1, AR258: 1, AR288: 1, AR210: 1, AR285: 1, AR039: 1, AR193: 1, AR191: 1, AR299: 1, AR293: 1, AR238: 1, L0439: 8, L0751: 6, L0747: 6, L0665: 5, L0438: 4, L0779: 4, H0012: 3, L0748: 3, H0620: 2, H0594: 2, H0424: 2, H0553: 2, S0144: 2, L0769: 2, L0771: 2, L0809: 2, H0144: 2, H0593: 2, S0027: 2, L0777: 2, L0758: 2, L0587: 2, H0422: 2, H0171: 1, H0713: 1, H0664: 1, H0619: 1, S0222: 1, H0492: 1, L3653: 1, H0618: 1, H0253: 1, H0581: 1, H0052: 1, H0150: 1, H0024: 1, S0388: 1, S0364: 1, H0135: 1, H0040: 1, L0640: 1, L3905: 1, L0761: 1, L0372: 1, L0773: 1, L0648: 1, L0662: 1, L0766: 1, L0774: 1,</p>
311	HLWAO22	587270	321	<p>AR214: 8, AR217: 6, AR222: 5, AR215: 5, AR221: 5, AR172: 5, AR309: 4, AR275: 4, AR163: 4, AR161: 4, AR162: 4, AR170: 4, AR224: 4, AR171: 4, AR165: 4, AR253: 3, AR225: 3, AR164: 3, AR166: 3, AR223: 3, AR263: 3, AR169: 3, AR311: 3, AR264: 3, AR197: 3, AR216: 3, AR271: 3, AR183: 3, AR308: 3, AR053: 3, AR096: 3, AR291: 3, AR296: 3, AR312: 3, AR245: 2, AR289: 2, AR104: 2, AR240: 2, AR316: 2, AR300: 2, AR269: 2, AR196: 2, AR272: 2, AR247: 2, AR185: 2, AR176: 2, AR177: 2, AR178: 2, AR213: 2, AR192: 2, AR181: 2, AR277: 2, AR234: 2, AR205: 2, AR229: 2, AR282: 2, AR055: 2, AR061: 2, AR274: 2, AR243: 2, AR060: 2, AR212: 2, AR226: 2, AR257: 2, AR313: 2, AR231: 2, AR255: 2, AR268: 2, AR089: 2, AR179: 2, AR287: 2, AR261: 2, AR203: 2, AR233: 1, AR283: 1, AR290: 1, AR258: 1, AR288: 1, AR210: 1, AR285: 1, AR039: 1, AR193: 1, AR191: 1, AR299: 1, AR293: 1, AR238: 1, L0439: 8, L0751: 6, L0747: 6, L0665: 5, L0438: 4, L0779: 4, H0012: 3, L0748: 3, H0620: 2, H0594: 2, H0424: 2, H0553: 2, S0144: 2, L0769: 2, L0771: 2, L0809: 2, H0144: 2, H0593: 2, S0027: 2, L0777: 2, L0758: 2, L0587: 2, H0422: 2, H0171: 1, H0713: 1, H0664: 1, H0619: 1, S0222: 1, H0492: 1, L3653: 1, H0618: 1, H0253: 1, H0581: 1, H0052: 1, H0150: 1, H0024: 1, S0388: 1, S0364: 1, H0135: 1, H0040: 1, L0640: 1, L3905: 1, L0761: 1, L0372: 1, L0773: 1, L0648: 1, L0662: 1, L0766: 1, L0774: 1,</p>

312	HLWAY54	658702	322	L0629: 1, L0666: 1, L0664: 1, H0658: 1, H0521: 1, S3014: 1, H0543: 1 and H0423: 1. AR245: 7, AR263: 5, AR197: 5, AR170: 5, AR215: 5, AR162: 5, AR264: 5, AR163: 5, AR161: 4, AR309: 4, AR308: 4, AR246: 4, AR275: 4, AR165: 4, AR164: 4, AR166: 4, AR192: 4, AR053: 4, AR272: 4, AR271: 3, AR312: 3, AR212: 3, AR198: 3, AR213: 3, AR282: 3, AR311: 3, AR282: 3, AR254: 3, AR225: 3, AR240: 3, AR250: 3, AR296: 3, AR217: 3, AR261: 2, AR171: 2, AR201: 2, AR193: 2, AR033: 2, AR238: 2, AR313: 2, AR257: 2, AR176: 2, AR203: 2, AR289: 2, AR274: 2, AR216: 2, AR295: 2, AR104: 2, AR060: 2, AR096: 2, AR285: 2, AR243: 2, AR221: 2, AR200: 2, AR286: 2, AR291: 2, AR277: 2, AR283: 2, AR316: 2, AR089: 2, AR195: 2, AR226: 2, AR287: 2, AR173: 2, AR229: 2, AR239: 2, AR175: 2, AR055: 2, AR300: 2, AR185: 2, AR227: 2, AR061: 2, AR039: 1, AR299: 1, AR196: 1, AR266: 1, AR183: 1, AR224: 1, AR205: 1, AR267: 1, AR190: 1, AR247: 1, AR191: 1, AR297: 1, AR182: 1, AR294: 1, AR232: 1, AR258: 1, AR233: 1, AR269: 1, AR177: 1, AR230: 1, AR188: 1, AR262: 1, AR236: 1, H0618: 18, H0253: 17, L0758: 11, AR258: 1, AR233: 1, AR269: 1, AR177: 1, AR230: 1, AR188: 1, AR262: 1, AR236: 1, L0764: 1, L0768: 1, L0780: 1 and H0445: 1. H0038: 4, H0657: 2, H0616: 2, S0116: 1, S0001: 1, H0421: 1, H0553: 1, L0764: 1, L0768: 1, L0780: 1 and H0445: 1. AR223: 70, AR214: 68, AR196: 64, AR169: 59, AR216: 58, AR224: 58, AR313: 57, AR222: 56, AR207: 55, AR212: 55, AR173: 54, AR171: 53, AR236: 53, AR215: 52, AR213: 49, AR192: 49, AR163: 49, AR217: 48, AR205: 47, AR172: 47, AR245: 46, AR225: 46, AR263: 46, AR221: 46, AR089: 46, AR199: 45, AR053: 45, AR168: 44, AR218: 44, AR166: 44, AR299: 44, AR164: 42, AR242: 41, AR274: 40, AR219: 40, AR240: 40, AR247: 40, AR165: 40, AR170: 40, AR175: 40, AR161: 40, AR312: 39, AR188: 38, AR235: 38, AR162: 37, AR195: 37, AR264: 36, AR174: 36, AR177: 36, AR096: 36, AR246: 36, AR308: 36, AR189: 35, AR039: 35, AR210: 35, AR229: 34, AR311: 34, AR198: 34, AR316: 34, AR261: 33, AR262: 32, AR296: 32, AR309: 32, AR288: 32, AR181: 32, AR258: 32, AR185: 32, AR300: 32, AR295: 31, AR191: 30, AR178: 30, AR060: 30, AR179: 29, AR291: 29, AR285: 29, AR200: 28, AR297: 28, AR180: 27, AR197: 27, AR183: 27, AR270: 27, AR193: 27, AR275: 27, AR290: 27, AR234: 26, AR230: 26, AR201: 26, AR226: 26, AR282: 26, AR286: 25, AR293: 24, AR203: 24, AR287: 23, AR033: 23, AR268: 23, AR231: 23, AR204: 23, AR277: 23, AR271: 23, AR257: 23, AR182: 23, AR238: 23, AR190: 22, AR272: 22, AR237: 21, AR252: 21, AR269: 21, AR176: 21, AR211: 21, AR294: 21, AR289: 21, AR260: 20, AR104: 20, AR233: 20, AR239: 19, AR256: 19, AR283: 19, AR255: 19, AR243: 19, AR227: 18, AR266: 17, AR232: 16, AR228: 16, AR267: 15, AR254: 13, AR250: 13, AR253: 12, AR055: 11, AR061: 9, H0553: 1
313	HLWBH18	1045194	323	
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315	HLWBK05	765310	325	<p>AR266: 3, AR283: 3, AR055: 3, AR232: 3, AR061: 3, AR256: 3, AR233: 3, AR234: 3, AR227: 2, AR228: 1, H0581: 3, H0436: 3, L0752: 3, S0358: 2, L0766: 2, L0764: 2, L0754: 2, L0777: 2, S0114: 1, S0116: 1, H0663: 1, S0360: 1, H0645: 1, H0586: 1, H0587: 1, H0333: 1, H0331: 1, H0486: 1, S0280: 1, H0590: 1, S0318: 1, H0622: 1, H0553: 1, H0598: 1, L0770: 1, L0767: 1, L0794: 1, L0803: 1, L0636: 1, L0666: 1, L0663: 1, L0438: 1, H0547: 1, S0328: 1, H0555: 1, L0439: 1, S0031: 1, S0194: 1 and H0543: 1.</p> <p>AR202: 58, AR207: 41, AR281: 39, AR194: 37, AR206: 35, AR214: 33, AR244: 31, AR195: 30, AR246: 29, AR315: 28, AR222: 28, AR223: 27, AR205: 27, AR280: 26, AR169: 25, AR235: 25, AR263: 24, AR198: 24, AR192: 23, AR212: 23, AR224: 23, AR171: 21, AR314: 21, AR241: 21, AR172: 21, AR168: 20, AR311: 19, AR197: 19, AR216: 19, AR217: 19, AR213: 19, AR271: 19, AR165: 19, AR245: 19, AR225: 18, AR310: 18, AR273: 18, AR242: 18, AR243: 18, AR164: 18, AR221: 17, AR264: 17, AR265: 17, AR033: 17, AR170: 16, AR166: 16, AR053: 16, AR215: 16, AR204: 16, AR295: 16, AR274: 16, AR309: 15, AR292: 14, AR282: 14, AR284: 14, AR163: 14, AR252: 14, AR275: 14, AR162: 14, AR161: 14, AR201: 14, AR096: 13, AR285: 13, AR308: 13, AR247: 13, AR193: 13, AR052: 13, AR283: 13, AR039: 13, AR196: 13, AR312: 13, AR232: 13, AR261: 13, AR177: 13, AR210: 12, AR240: 12, AR181: 12, AR288: 12, AR277: 12, AR089: 12, AR300: 12, AR183: 12, AR211: 12, AR298: 11, AR299: 11, AR272: 11, AR313: 11, AR236: 11, AR251: 11, AR238: 11, AR175: 11, AR270: 10, AR297: 10, AR289: 10, AR174: 10, AR291: 10, AR286: 10, AR219: 10, AR296: 10, AR055: 10, AR266: 10, AR218: 10, AR186: 10, AR229: 9, AR316: 9, AR185: 9, AR269: 9, AR231: 9, AR287: 9, AR293: 9, AR268: 9, AR226: 9, AR060: 9, AR239: 8, AR234: 8, AR258: 8, AR250: 8, AR227: 8, AR254: 8, AR259: 8, AR173: 8, AR182: 8, AR199: 8, AR188: 8, AR253: 8, AR191: 8, AR294: 8, AR237: 8, AR189: 8, AR262: 8, AR184: 8, AR290: 7, AR256: 7, AR200: 7, AR257: 7, AR180: 7, AR104: 7, AR260: 7, AR061: 7, AR178: 7, AR267: 6, AR233: 6, AR230: 6, AR176: 6, AR249: 6, AR190: 6, AR255: 6, AR203: 6, AR179: 5, AR248: 5, AR228: 4, L0439: 16, L0748: 12, L0758: 9, H0013: 6, L0740: 5, L0754: 5, S0474: 4, H0265: 3, H0556: 3, H0619: 3, S0010: 3, H0266: 3, L0662: 3, L0803: 3, L0749: 3, L0752: 3, H0686: 2, S0358: 2, S0360: 2, H0632: 2, S0049: 2, H0545: 2, H0620: 2, H0594: 2, S0022: 2, H0553: 2, H0090: 2, H0100: 2, L0769: 2, L0772: 2, L0764: 2, L0794: 2, L0375: 2, L0805: 2, L0654: 2, L0776: 2, L0517: 2, L0518: 2, H0435: 2, S0406: 2, L0756: 2, L0779: 2, L0589: 2, L0591: 2, L0362: 2, H0713: 1, H0661: 1, H0663: 1, S0420: 1, L0005: 1, S0376: 1, H0749: 1, S0476: 1, S0222: 1, T0040: 1, L0021: 1, H0575: 1, H0618: 1, H0052: 1, H0563: 1, H0050: 1, H0012: 1, T0010: 1, H0083: 1, H0179: 1, H0271: 1, S0214: 1, H0622: 1, H0644: 1, H0673: 1, H0674: 1, S0036: 1, H0135: 1, H0038: 1, H0264: 1, L0351: 1, T0042: 1, S0144: 1, S0142: 1, L0369: 1, L0763: 1, L0773: 1, L0521: 1, L0649: 1, L0804: 1, L0774: 1, L5622: 1, L0788: 1, L0790: 1, L0663: 1, L0664: 1, H0144: 1, H0693: 1, H0690: 1, H0659: 1, H0670: 1, H0648: 1, H0518: 1, S0152: 1, H0696: 1, H0134: 1, S0027: 1, L3330: 1, L0742: 1, L0757: 1, H0444: 1, S0026: 1, S0196: 1, S0412: 1 and H0506: 1.</p>
316	HLWBY76	797609	326	<p>AR180: 20, AR181: 14, AR268: 6, AR219: 5, AR218: 5, AR269: 5, AR179: 5, AR273: 5, AR178: 4, AR173: 4, AR184: 4, AR183: 4, AR176: 4, AR270: 3, AR221: 3, AR215: 3, AR282: 3, AR214: 3, AR052: 3, AR267: 2, AR309: 2, AR202: 2, AR253: 2, AR312: 2, AR162: 2, AR266: 2, AR182: 2, AR165: 2, AR216: 2, AR171: 2, AR190: 1, AR213: 1, AR192: 1, AR243: 1, AR186: 1, AR229: 1, AR257: 1, AR205: 1, AR053: 1, AR313: 1, AR230: 1, AR274: 1, AR174: 1, AR272: 1, AR280: 1, AR240: 1, AR252: 1, AR316: 1, AR277: 1, AR284: 1, AR263: 1, AR172: 1, AR096: 1, AR271: 1, H0553: 7, H0412: 4, L0747: 4, L0779: 4, L0777: 4, H0615: 3, L0766: 3, H0519: 3, L0755: 3, L0591: 3, H0413: 2, L0768: 2,</p>

317	HLWCF05	460619	327	<p>L0794: 2, L0754: 2, L0759: 2, L0588: 2, H0624: 1, H0716: 1, T0049: 1, S0212: 1, S0045: 1, S0278: 1, H0497: 1, L0021: 1, T0048: 1, L0471: 1, L0194: 1, H0644: 1, L0142: 1, H0269: 1, H0056: 1, H0059: 1, L0475: 1, S0422: 1, L0761: 1, L0646: 1, L0806: 1, L0655: 1, L0789: 1, L0791: 1, H0144: 1, H0726: 1, H0547: 1, H0659: 1, H0214: 1, L0780: 1, L0757: 1, L0758: 1, L0362: 1, S0026: 1, H0665: 1, H0542: 1 and H0543: 1.</p> <p>AR196: 15, AR235: 9, AR271: 8, AR261: 8, AR309: 8, AR214: 7, AR188: 7, AR199: 7, AR191: 7, AR223: 6, AR263: 6, AR218: 6, AR189: 6, AR222: 6, AR198: 5, AR165: 5, AR312: 5, AR164: 5, AR275: 5, AR295: 5, AR166: 5, AR240: 5, AR308: 5, AR190: 5, AR311: 5, AR282: 4, AR264: 4, AR224: 4, AR161: 4, AR162: 4, AR096: 4, AR216: 4, AR163: 4, AR217: 4, AR039: 4, AR195: 4, AR089: 4, AR296: 4, AR177: 4, AR246: 4, AR285: 4, AR288: 4, AR200: 4, AR210: 4, AR219: 4, AR175: 4, AR183: 4, AR168: 4, AR236: 4, AR207: 4, AR253: 4, AR174: 4, AR299: 4, AR178: 4, AR192: 3, AR060: 3, AR203: 3, AR316: 3, AR181: 3, AR238: 3, AR213: 3, AR257: 3, AR212: 3, AR237: 3, AR245: 3, AR173: 3, AR268: 3, AR242: 3, AR250: 3, AR104: 3, AR274: 3, AR182: 3, AR272: 3, AR270: 3, AR269: 3, AR291: 3, AR221: 3, AR053: 3, AR262: 3, AR225: 3, AR258: 3, AR226: 3, AR289: 3, AR176: 3, AR232: 2, AR234: 2, AR193: 2, AR277: 2, AR211: 2, AR239: 2, AR267: 2, AR300: 2, AR287: 2, AR172: 2, AR205: 2, AR297: 2, AR294: 2, AR180: 2, AR231: 2, AR313: 2, AR185: 2, AR229: 2, AR171: 2, AR033: 2, AR286: 2, AR290: 2, AR293: 2, AR197: 2, AR233: 2, AR215: 2, AR243: 2, AR201: 2, AR061: 2, AR227: 2, AR179: 2, AR228: 2, AR283: 1, AR255: 1, AR247: 1, AR260: 1, AR230: 1, AR266: 1, L0439: 9, L0766: 7, H0521: 5, L0740: 5, L0758: 5, S0010: 4, L0749: 4, H0038: 3, L0805: 3, L0748: 3, L0777: 3, H0657: 2, H0341: 2, S0418: 2, S0444: 2, S0410: 2, H0747: 2, S0476: 2, L3655: 2, H0013: 2, H0553: 2, H0032: 2, H0169: 2, L0455: 2, H0040: 2, S0422: 2, H0529: 2, L0667: 2, L0662: 2, L0768: 2, L0519: 2, L0754: 2, L0745: 2, L0747: 2, L0750: 2, L0779: 2, L0731: 2, S0434: 2, S0436: 2, L0592: 2, S0412: 2, H0556: 1, T0002: 1, S0114: 1, S0116: 1, L0879: 1, H0638: 1, S0420: 1, S0356: 1, S0358: 1, S0376: 1, S0408: 1, L1499: 1, H0749: 1, H0619: 1, L2817: 1, L3485: 1, H0586: 1, H0587: 1, H0333: 1, H0574: 1, H0632: 1, T0039: 1, L1788: 1, L1877: 1, L0021: 1, L0022: 1, H0575: 1, S0474: 1, H0581: 1, H0457: 1, H0320: 1, H0014: 1, L0163: 1, H0375: 1, H0188: 1, S0250: 1, L0483: 1, H0598: 1, H0163: 1, H0591: 1, H0616: 1, H0623: 1, H0100: 1, H0494: 1, S0440: 1, L0598: 1, L0763: 1, L0769: 1, L0638: 1, L0800: 1, L0641: 1, L0794: 1, L0803: 1, L0775: 1, L0806: 1, L0776: 1, L0527: 1, L0659: 1, L0635: 1, L0789: 1, L0787: 1, L0666: 1, L0663: 1, L0664: 1, L0665: 1, S0428: 1, L2653: 1, L2261: 1, H0519: 1, H0435: 1, H0670: 1, H0672: 1, H0539: 1, H0696: 1, S0406: 1, H0436: 1, H0727: 1, L0755: 1, L0485: 1, H0423: 1 and H0506: 1.</p> <p>AR176: 19, AR182: 14, AR261: 10, AR192: 9, AR262: 9, AR191: 8, AR255: 7, AR296: 7, AR231: 7, AR201: 6, AR232: 6, AR234: 6, AR233: 6, AR228: 6, AR183: 6, AR246: 6, AR229: 6, AR239: 6, AR200: 6, AR287: 5, AR207: 5, AR291: 5, AR260: 5, AR294: 5, AR245: 5, AR179: 5, AR243: 5, AR266: 5, AR177: 5, AR168: 5, AR285: 5, AR162: 5, AR289: 5, AR185: 4, AR237: 4, AR161: 4, AR221: 4, AR236: 4, AR264: 4, AR274: 4, AR227: 4, AR215: 4, AR222: 4, AR223: 4, AR309: 4, AR193: 4, AR290: 4, AR313: 3, AR196: 3, AR263: 3, AR174: 3, AR204: 3, AR293: 3, AR205: 3, AR189: 3, AR217: 3, AR282: 3, AR033: 3, AR257: 3, AR288: 3, AR312: 2, AR275: 2, AR277: 2, AR216: 2, AR295: 2, AR311: 2, AR258: 2, AR316: 2, AR181: 2, AR225: 2, AR061: 2, AR214: 2, AR240: 2, AR039: 2, AR299: 2, AR170: 2, AR252: 2, AR199: 2, AR238: 2, AR247: 2, AR256: 2, AR089: 2, AR224: 2, AR219: 2, AR096: 2, AR211: 2, AR060: 1, AR188: 1, AR175: 1, AR300: 1, AR226: 1, AR173: 1, AR286: 1, AR269: 1, H0445: 1.</p> <p>AR169: 9, AR263: 9, AR221: 8, AR253: 7, AR207: 7, AR171: 7, AR217: 7, AR168: 7, AR224: 7, AR309: 7, AR223: 6, .</p>
318	HLYAC95	778075	328	<p>AR176: 19, AR182: 14, AR261: 10, AR192: 9, AR262: 9, AR191: 8, AR255: 7, AR296: 7, AR231: 7, AR201: 6, AR232: 6, AR234: 6, AR233: 6, AR228: 6, AR183: 6, AR246: 6, AR229: 6, AR239: 6, AR200: 6, AR287: 5, AR207: 5, AR291: 5, AR260: 5, AR294: 5, AR245: 5, AR179: 5, AR243: 5, AR266: 5, AR177: 5, AR168: 5, AR285: 5, AR162: 5, AR289: 5, AR185: 4, AR237: 4, AR161: 4, AR221: 4, AR236: 4, AR264: 4, AR274: 4, AR227: 4, AR215: 4, AR222: 4, AR223: 4, AR309: 4, AR193: 4, AR290: 4, AR313: 3, AR196: 3, AR263: 3, AR174: 3, AR204: 3, AR293: 3, AR205: 3, AR189: 3, AR217: 3, AR282: 3, AR033: 3, AR257: 3, AR288: 3, AR312: 2, AR275: 2, AR277: 2, AR216: 2, AR295: 2, AR311: 2, AR258: 2, AR316: 2, AR181: 2, AR225: 2, AR061: 2, AR214: 2, AR240: 2, AR039: 2, AR299: 2, AR170: 2, AR252: 2, AR199: 2, AR238: 2, AR247: 2, AR256: 2, AR089: 2, AR224: 2, AR219: 2, AR096: 2, AR211: 2, AR060: 1, AR188: 1, AR175: 1, AR300: 1, AR226: 1, AR173: 1, AR286: 1, AR269: 1, H0445: 1.</p> <p>AR169: 9, AR263: 9, AR221: 8, AR253: 7, AR207: 7, AR171: 7, AR217: 7, AR168: 7, AR224: 7, AR309: 7, AR223: 6, .</p>
319	HLYAF80	460622	329	<p>AR176: 19, AR182: 14, AR261: 10, AR192: 9, AR262: 9, AR191: 8, AR255: 7, AR296: 7, AR231: 7, AR201: 6, AR232: 6, AR234: 6, AR233: 6, AR228: 6, AR183: 6, AR246: 6, AR229: 6, AR239: 6, AR200: 6, AR287: 5, AR207: 5, AR291: 5, AR260: 5, AR294: 5, AR245: 5, AR179: 5, AR243: 5, AR266: 5, AR177: 5, AR168: 5, AR285: 5, AR162: 5, AR289: 5, AR185: 4, AR237: 4, AR161: 4, AR221: 4, AR236: 4, AR264: 4, AR274: 4, AR227: 4, AR215: 4, AR222: 4, AR223: 4, AR309: 4, AR193: 4, AR290: 4, AR313: 3, AR196: 3, AR263: 3, AR174: 3, AR204: 3, AR293: 3, AR205: 3, AR189: 3, AR217: 3, AR282: 3, AR033: 3, AR257: 3, AR288: 3, AR312: 2, AR275: 2, AR277: 2, AR216: 2, AR295: 2, AR311: 2, AR258: 2, AR316: 2, AR181: 2, AR225: 2, AR061: 2, AR214: 2, AR240: 2, AR039: 2, AR299: 2, AR170: 2, AR252: 2, AR199: 2, AR238: 2, AR247: 2, AR256: 2, AR089: 2, AR224: 2, AR219: 2, AR096: 2, AR211: 2, AR060: 1, AR188: 1, AR175: 1, AR300: 1, AR226: 1, AR173: 1, AR286: 1, AR269: 1, H0445: 1.</p> <p>AR169: 9, AR263: 9, AR221: 8, AR253: 7, AR207: 7, AR171: 7, AR217: 7, AR168: 7, AR224: 7, AR309: 7, AR223: 6, .</p>

320	HL YAN59	1352203	330	<p>AR235: 6, AR242: 6, AR225: 6, AR215: 6, AR311: 6, AR172: 6, AR282: 6, AR053: 6, AR192: 6, AR245: 5, AR264: 5, AR216: 5, AR170: 5, AR165: 5, AR214: 5, AR164: 5, AR195: 5, AR308: 5, AR212: 5, AR166: 5, AR198: 5, AR261: 5, AR089: 5, AR252: 5, AR222: 5, AR213: 5, AR161: 5, AR162: 5, AR163: 4, AR246: 4, AR274: 4, AR275: 4, AR277: 4, AR240: 4, AR312: 4, AR205: 4, AR316: 4, AR286: 4, AR096: 4, AR283: 4, AR193: 4, AR196: 4, AR060: 4, AR199: 3, AR272: 3, AR295: 3, AR288: 3, AR176: 3, AR177: 3, AR313: 3, AR181: 3, AR033: 3, AR185: 3, AR200: 3, AR271: 3, AR297: 3, AR175: 3, AR289: 3, AR236: 3, AR300: 3, AR291: 3, AR270: 3, AR296: 3, AR254: 3, AR247: 3, AR285: 3, AR201: 3, AR257: 3, AR203: 3, AR104: 3, AR299: 3, AR262: 3, AR174: 2, AR180: 2, AR197: 2, AR173: 2, AR238: 2, AR287: 2, AR190: 2, AR255: 2, AR268: 2, AR039: 2, AR294: 2, AR189: 2, AR239: 2, AR293: 2, AR231: 2, AR188: 2, AR234: 2, AR055: 2, AR191: 2, AR290: 2, AR267: 2, AR276: 2, AR266: 2, AR183: 2, AR232: 2, AR237: 2, AR230: 2, AR233: 2, AR227: 2, AR178: 2, AR228: 2, AR061: 2, AR210: 1, AR219: 1, AR211: 1, AR182: 1, AR256: 1, AR218: 1, AR258: 1, AR179: 1, AR243: 1, AR260: 1, AR229: 1, H0445: 1</p> <p>AR214: 24, AR207: 20, AR224: 19, AR223: 19, AR222: 18, AR169: 18, AR168: 18, AR221: 17, AR213: 17, AR235: 16, AR164: 16, AR217: 16, AR192: 15, AR165: 15, AR212: 15, AR171: 15, AR172: 15, AR166: 14, AR216: 14, AR161: 14, AR162: 14, AR163: 13, AR170: 13, AR215: 12, AR089: 12, AR308: 12, AR261: 12, AR312: 11, AR196: 11, AR274: 11, AR195: 11, AR225: 11, AR252: 10, AR198: 10, AR240: 10, AR289: 10, AR277: 10, AR288: 10, AR177: 9, AR282: 9, AR053: 9, AR242: 9, AR297: 9, AR096: 9, AR060: 9, AR309: 9, AR236: 9, AR316: 8, AR104: 8, AR271: 8, AR033: 8, AR263: 8, AR205: 8, AR210: 8, AR311: 8, AR185: 8, AR285: 7, AR181: 7, AR253: 7, AR055: 7, AR193: 7, AR291: 7, AR211: 7, AR199: 7, AR264: 7, AR313: 7, AR275: 7, AR218: 7, AR174: 7, AR283: 7, AR293: 7, AR197: 7, AR286: 7, AR039: 6, AR238: 6, AR246: 6, AR254: 6, AR247: 6, AR287: 6, AR219: 6, AR300: 6, AR175: 6, AR289: 6, AR180: 6, AR296: 6, AR188: 6, AR250: 6, AR229: 6, AR243: 5, AR258: 5, AR204: 5, AR200: 5, AR173: 5, AR272: 5, AR203: 5, AR262: 5, AR239: 5, AR232: 5, AR226: 5, AR266: 5, AR176: 5, AR257: 5, AR191: 5, AR189: 5, AR245: 5, AR227: 5, AR237: 4, AR231: 4, AR234: 4, AR294: 4, AR230: 4, AR268: 4, AR290: 4, AR256: 4, AR255: 4, AR270: 4, AR178: 4, AR061: 4, AR182: 3, AR269: 3, AR190: 3, AR183: 3, AR260: 3, AR179: 3, AR233: 3, AR228: 3, AR201: 3, AR267: 2, L0800: 2, L0021: 1, H0774: 1, L0749: 1 and H0445: 1.</p>
321	HL YAN59 HL YAP91	553507 553514	780 331	<p>AR214: 10, AR207: 9, AR169: 8, AR224: 8, AR165: 7, AR168: 7, AR235: 7, AR170: 7, AR164: 7, AR192: 7, AR223: 7, AR222: 7, AR161: 7, AR162: 7, AR053: 7, AR263: 7, AR163: 7, AR195: 7, AR264: 6, AR245: 6, AR166: 6, AR198: 6, AR309: 6, AR172: 6, AR171: 6, AR180: 6, AR196: 6, AR216: 6, AR312: 6, AR089: 6, AR308: 6, AR213: 6, AR225: 6, AR212: 5, AR282: 5, AR250: 5, AR271: 5, AR217: 5, AR096: 5, AR177: 5, AR313: 4, AR253: 4, AR199: 4, AR311: 4, AR277: 4, AR193: 4, AR254: 4, AR316: 4, AR246: 4, AR261: 4, AR283: 4, AR295: 4, AR060: 4, AR288: 4, AR236: 4, AR275: 4, AR240: 4, AR297: 4, AR215: 4, AR055: 4, AR270: 4, AR299: 3, AR238: 3, AR185: 3, AR285: 3, AR286: 3, AR296: 3, AR252: 3, AR247: 3, AR183: 3, AR269: 3, AR291: 3, AR191: 3, AR300: 3, AR178: 3, AR230: 3, AR237: 3, AR262: 3, AR257: 3, AR173: 3, AR255: 3, AR104: 3, AR200: 3, AR179: 3, AR197: 3, AR189: 3, AR227: 3, AR210: 3, AR289: 3, AR272: 3, AR181: 3, AR293: 3, AR239: 3, AR226: 3, AR258: 3, AR201: 3, AR204: 3, AR174: 3, AR188: 3, AR190: 3, AR218: 2, AR232: 2, AR268: 2, AR231: 2, AR033: 2, AR175: 2, AR243: 2, AR229: 2, AR182: 2, AR211: 2, AR203: 2, AR221: 2, AR233: 2, AR176: 2, AR234: 2, AR061: 2, AR294: 2, AR290: 2, AR287: 2, AR219: 2, AR205: 2,</p>

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323	HL YAZ61 HL YBD32	423998 566657	781 333	AR250: 5, AR253: 4, AR243: 4, AR165: 4, AR271: 3, AR166: 3, AR164: 3, AR235: 3, AR229: 3, AR225: 3, AR193: 3, AR245: 3, AR163: 3, AR170: 3, AR309: 3, AR096: 3, AR178: 3, AR196: 2, AR282: 2, AR313: 2, AR261: 2, AR291: 2, AR191: 2, AR270: 2, AR268: 2, AR201: 2, AR217: 2, AR264: 2, AR089: 2, AR277: 2, AR216: 2, AR182: 2, AR055: 2, AR171: 2, AR188: 2, AR266: 2, AR212: 2, AR228: 2, AR240: 2, AR267: 2, AR312: 2, AR300: 2, AR257: 1, AR195: 1, AR247: 1, AR274: 1, AR213: 1, AR173: 1, AR290: 1, AR189: 1, AR179: 1, AR299: 1, AR230: 1, AR199: 1, AR316: 1, AR238: 1, AR205: 1, AR060: 1, AR200: 1, L0777: 2, H0445: 2, H0318: 1, T0071: 1, S0426: 1, S0428: 1 and L0740: 1. AR183: 8, AR182: 7, AR180: 7, AR269: 6, AR238: 6, AR270: 6, AR252: 6, AR313: 5, AR181: 5, AR165: 4, AR296: 4, AR164: 4, AR162: 4, AR268: 4, AR178: 4, AR161: 4, AR166: 4, AR163: 4, AR089: 4, AR179: 4, AR176: 4, AR175: 4, AR221: 4, AR225: 3, AR257: 3, AR309: 3, AR243: 3, AR192: 3, AR267: 3, AR096: 3, AR224: 3, AR293: 3, AR299: 3, AR173: 3, AR282: 3, AR247: 3, AR300: 3, AR237: 3, AR217: 3, AR228: 3, AR277: 3, AR264: 3, AR226: 3, AR053: 3, AR230: 3, AR204: 2, AR316: 2, AR283: 2, AR271: 2, AR294: 2, AR311: 2, AR207: 2, AR297: 2, AR198: 2, AR312: 2, AR213: 2, AR239: 2, AR240: 2, AR286: 2, AR195: 2, AR289: 2, AR033: 2, AR290: 2, AR233: 2, AR274: 2, AR308: 2, AR229: 2, AR185: 2, AR234: 2, AR262: 2, AR263: 2, AR272: 2, AR261: 2, AR246: 2, AR232: 2, AR231: 2, AR177: 2, AR229: 2, AR055: 2, AR172: 2, AR295: 2, AR291: 2, AR212: 2, AR203: 2, AR255: 2, AR188: 2, AR170: 2, AR287: 2, AR060: 2, AR227: 2, AR200: 2, AR193: 2, AR242: 2, AR171: 1, AR168: 1, AR254: 1, AR258: 1, AR061: 1, AR189: 1, AR211: 1, AR191: 1, AR190: 1, AR174: 1, AR205: 1, AR201: 1, AR104: 1, AR285: 1, H0687: 2 and H0445: 1. AR218: 19, AR219: 19, AR283: 12, AR096: 12, AR313: 11, AR316: 10, AR240: 10, AR300: 9, AR185: 9, AR055: 9, AR277: 9, AR039: 8, AR089: 8, AR282: 8, AR060: 8, AR299: 7, AR104: 7, L0794: 4, L0375: 3, H0575: 2, L0800: 2, L0789: 2, H0556: 1, H0662: 1, S0418: 1, H0619: 1, H0549: 1, H0590: 1, H0052: 1, H0083: 1, H0266: 1, H0286: 1, H0644: 1, S0036: 1, H0433: 1, H0412: 1, H0413: 1, T0042: 1, S0144: 1, S0142: 1, S0344: 1, L0770: 1, L0761: 1, L0774: 1, H0518: 1, L0777: 1, L0758: 1 and H0665: 1.
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326	HM ADU73	1352177	336	

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333	HMEET96	566720	343	

334	HMIAP86	603201	344	<p>9, AR249: 9, AR055: 8, AR265: 8, AR312: 8, AR290: 7, AR182: 7, AR291: 7, AR184: 7, AR267: 7, AR280: 7, AR292: 7, AR286: 7, AR295: 6, AR253: 6, AR285: 6, AR300: 6, AR284: 6, AR314: 6, AR175: 6, AR289: 5, AR282: 5, AR185: 5, AR298: 5, AR240: 5, AR104: 5, AR283: 5, AR296: 5, AR183: 4, AR315: 4, AR033: 4, AR179: 4, AR061: 4, AR238: 4, AR293: 4, AR247: 3, AR177: 3, AR229: 3, AR244: 3, AR241: 3, AR277: 3, AR294: 3, AR231: 3, AR233: 2, AR234: 2, AR232: 2, AR237: 2, AR226: 2, AR271: 2, AR186: 2, AR256: 2, AR281: 1, AR259: 1, L0748: 7, L0439: 7, L0770: 5, L0771: 4, L0740: 4, L0766: 3, H0341: 2, H0486: 2, H0596: 2, H0178: 2, H0373: 2, H0266: 2, S0422: 2, S0002: 2, L0775: 2, L0659: 2, L0663: 2, L0665: 2, L0438: 2, H0666: 2, H0521: 2, S0027: 2, L0754: 2, L0601: 2, H0667: 2, H0624: 1, H0717: 1, S0114: 1, L0415: 1, L0760: 1, S0116: 1, H0638: 1, H0722: 1, H0728: 1, H0733: 1, S0476: 1, H0792: 1, H0411: 1, H0497: 1, L3653: 1, L3655: 1, H0250: 1, H0427: 1, L0021: 1, S0010: 1, H0318: 1, H0581: 1, H0421: 1, H0744: 1, T0110: 1, H0597: 1, S0003: 1, H0328: 1, H0181: 1, H0673: 1, H0068: 1, H0551: 1, S0440: 1, H0633: 1, S0144: 1, L0763: 1, L3905: 1, L0772: 1, L0764: 1, L0773: 1, L0387: 1, L0650: 1, L0655: 1, L0783: 1, L0384: 1, L0529: 1, L5622: 1, L0666: 1, H0691: 1, H0547: 1, L3207: 1, H0690: 1, H0658: 1, H0670: 1, S0330: 1, H0696: 1, L0747: 1, L0755: 1, L0758: 1, S0031: 1, H0665: 1, S0276: 1 and H0543: 1.</p> <p>AR266: 6, AR207: 6, AR176: 6, AR217: 5, AR162: 5, AR161: 5, AR225: 5, AR163: 5, AR183: 5, AR182: 5, AR269: 5, AR245: 5, AR223: 5, AR214: 4, AR288: 4, AR205: 4, AR309: 4, AR181: 4, AR270: 4, AR267: 4, AR291: 4, AR216: 4, AR215: 4, AR261: 4, AR242: 4, AR274: 4, AR171: 4, AR289: 3, AR233: 3, AR235: 3, AR177: 3, AR195: 3, AR175: 3, AR286: 3, AR053: 3, AR287: 3, AR198: 3, AR268: 3, AR294: 3, AR236: 3, AR237: 3, AR255: 3, AR228: 3, AR180: 3, AR238: 3, AR257: 3, AR173: 3, AR172: 3, AR311: 3, AR271: 3, AR290: 3, AR293: 3, AR191: 3, AR179: 3, AR201: 3, AR192: 3, AR221: 3, AR229: 3, AR285: 3, AR247: 3, AR296: 3, AR275: 3, AR061: 3, AR199: 3, AR193: 2, AR165: 2, AR230: 2, AR166: 2, AR170: 2, AR164: 2, AR190: 2, AR243: 2, AR222: 2, AR178: 2, AR262: 2, AR060: 2, AR039: 2, AR231: 2, AR256: 2, AR204: 2, AR260: 2, AR200: 2, AR168: 2, AR297: 2, AR189: 2, AR188: 2, AR234: 2, AR239: 2, AR282: 2, AR316: 2, AR240: 2, AR272: 2, AR096: 2, AR295: 2, AR258: 2, AR224: 2, AR300: 2, AR226: 2, AR203: 2, AR232: 2, AR196: 2, AR246: 2, AR104: 2, AR213: 1, AR185: 1, AR299: 1, AR227: 1, AR089: 1, AR277: 1, AR312: 1, AR308: 1, AR169: 1, AR033: 1, AR055: 1, AR174: 1, S0354: 2, H0349: 2, S0442: 1, S0360: 1, S0010: 1, S0050: 1, H0015: 1, S0028: 1, H0622: 1, S0038: 1, S0440: 1, S0436: 1 and L0596: 1.</p> <p>AR310: 10, AR186: 10, AR244: 10, AR265: 9, AR241: 9, AR273: 7, AR312: 7, AR309: 7, AR052: 7, AR226: 6, AR202: 6, AR248: 6, AR161: 6, AR246: 6, AR061: 6, AR162: 6, AR163: 6, AR104: 6, AR238: 5, AR212: 5, AR165: 5, AR232: 5, AR053: 5, AR213: 5, AR164: 5, AR206: 5, AR237: 5, AR227: 5, AR274: 5, AR243: 5, AR192: 5, AR033: 5, AR215: 5, AR171: 4, AR272: 4, AR184: 4, AR253: 4, AR168: 4, AR263: 4, AR252: 4, AR269: 4, AR271: 4, AR275: 4, AR282: 4, AR218: 4, AR313: 4, AR299: 4, AR194: 4, AR173: 4, AR216: 4, AR204: 3, AR251: 3, AR219: 3, AR055: 3, AR280: 3, AR267: 3, AR231: 3, AR201: 3, AR224: 3, AR292: 3, AR189: 3, AR182: 3, AR185: 3, AR260: 3, AR198: 3, AR205: 3, AR261: 3, AR294: 3, AR060: 3, AR089: 3, AR096: 3, AR181: 3, AR190: 3, AR183: 3, AR288: 3, AR287: 3, AR240: 3, AR290: 3, AR217: 3, AR300: 3, AR170: 3, AR214: 3, AR273: 3, AR277: 3, AR247: 3, AR233: 3, AR264: 3, AR281: 3, AR175: 3, AR284: 3, AR266: 3, AR249: 3, AR229: 3, AR039: 3, AR316: 3, AR245: 2, AR230: 2, AR228: 2, AR221: 2, AR270: 2, AR296: 2, AR268: 2, AR285: 2, AR298: 2, AR311: 2, AR196: 2, AR177: 2, AR254: 2, AR283: 2, AR176: 2, AR223: 2, AR191: 2, AR180: 2, AR295: 2, AR308: 2, AR314: 2, AR239: 2, AR172: 2, AR225: 2,</p>
335	HMIAP86	726831	345	<p>AR249: 9, AR055: 8, AR265: 8, AR312: 8, AR290: 7, AR182: 7, AR291: 7, AR184: 7, AR267: 7, AR280: 7, AR292: 7, AR286: 7, AR295: 6, AR253: 6, AR285: 6, AR300: 6, AR284: 6, AR314: 6, AR175: 6, AR289: 5, AR282: 5, AR185: 5, AR298: 5, AR240: 5, AR104: 5, AR283: 5, AR296: 5, AR183: 4, AR315: 4, AR033: 4, AR179: 4, AR061: 4, AR238: 4, AR293: 4, AR247: 3, AR177: 3, AR229: 3, AR244: 3, AR241: 3, AR277: 3, AR294: 3, AR231: 3, AR233: 2, AR234: 2, AR232: 2, AR237: 2, AR226: 2, AR271: 2, AR186: 2, AR256: 2, AR281: 1, AR259: 1, L0748: 7, L0439: 7, L0770: 5, L0771: 4, L0740: 4, L0766: 3, H0341: 2, H0486: 2, H0596: 2, H0178: 2, H0373: 2, H0266: 2, S0422: 2, S0002: 2, L0775: 2, L0659: 2, L0663: 2, L0665: 2, L0438: 2, H0666: 2, H0521: 2, S0027: 2, L0754: 2, L0601: 2, H0667: 2, H0624: 1, H0717: 1, S0114: 1, L0415: 1, L0760: 1, S0116: 1, H0638: 1, H0722: 1, H0728: 1, H0733: 1, S0476: 1, H0792: 1, H0411: 1, H0497: 1, L3653: 1, L3655: 1, H0250: 1, H0427: 1, L0021: 1, S0010: 1, H0318: 1, H0581: 1, H0421: 1, H0744: 1, T0110: 1, H0597: 1, S0003: 1, H0328: 1, H0181: 1, H0673: 1, H0068: 1, H0551: 1, S0440: 1, H0633: 1, S0144: 1, L0763: 1, L3905: 1, L0772: 1, L0764: 1, L0773: 1, L0387: 1, L0650: 1, L0655: 1, L0783: 1, L0384: 1, L0529: 1, L5622: 1, L0666: 1, H0691: 1, H0547: 1, L3207: 1, H0690: 1, H0658: 1, H0670: 1, S0330: 1, H0696: 1, L0747: 1, L0755: 1, L0758: 1, S0031: 1, H0665: 1, S0276: 1 and H0543: 1.</p> <p>AR266: 6, AR207: 6, AR176: 6, AR217: 5, AR162: 5, AR161: 5, AR225: 5, AR163: 5, AR183: 5, AR182: 5, AR269: 5, AR245: 5, AR223: 5, AR214: 4, AR288: 4, AR205: 4, AR309: 4, AR181: 4, AR270: 4, AR267: 4, AR291: 4, AR216: 4, AR215: 4, AR261: 4, AR242: 4, AR274: 4, AR171: 4, AR289: 3, AR233: 3, AR235: 3, AR177: 3, AR195: 3, AR175: 3, AR286: 3, AR053: 3, AR287: 3, AR198: 3, AR268: 3, AR294: 3, AR236: 3, AR237: 3, AR255: 3, AR228: 3, AR180: 3, AR238: 3, AR257: 3, AR173: 3, AR172: 3, AR311: 3, AR271: 3, AR290: 3, AR293: 3, AR191: 3, AR179: 3, AR201: 3, AR192: 3, AR221: 3, AR229: 3, AR285: 3, AR247: 3, AR296: 3, AR275: 3, AR061: 3, AR199: 3, AR193: 2, AR165: 2, AR230: 2, AR166: 2, AR170: 2, AR164: 2, AR190: 2, AR243: 2, AR222: 2, AR178: 2, AR262: 2, AR060: 2, AR039: 2, AR231: 2, AR256: 2, AR204: 2, AR260: 2, AR200: 2, AR168: 2, AR297: 2, AR189: 2, AR188: 2, AR234: 2, AR239: 2, AR282: 2, AR316: 2, AR240: 2, AR272: 2, AR096: 2, AR295: 2, AR258: 2, AR224: 2, AR300: 2, AR226: 2, AR203: 2, AR232: 2, AR196: 2, AR246: 2, AR104: 2, AR213: 1, AR185: 1, AR299: 1, AR227: 1, AR089: 1, AR277: 1, AR312: 1, AR308: 1, AR169: 1, AR033: 1, AR055: 1, AR174: 1, S0354: 2, H0349: 2, S0442: 1, S0360: 1, S0010: 1, S0050: 1, H0015: 1, S0028: 1, H0622: 1, S0038: 1, S0440: 1, S0436: 1 and L0596: 1.</p> <p>AR310: 10, AR186: 10, AR244: 10, AR265: 9, AR241: 9, AR273: 7, AR312: 7, AR309: 7, AR052: 7, AR226: 6, AR202: 6, AR248: 6, AR161: 6, AR246: 6, AR061: 6, AR162: 6, AR163: 6, AR104: 6, AR238: 5, AR212: 5, AR165: 5, AR232: 5, AR053: 5, AR213: 5, AR164: 5, AR206: 5, AR237: 5, AR227: 5, AR274: 5, AR243: 5, AR192: 5, AR033: 5, AR215: 5, AR171: 4, AR272: 4, AR184: 4, AR253: 4, AR168: 4, AR263: 4, AR252: 4, AR269: 4, AR271: 4, AR275: 4, AR282: 4, AR218: 4, AR313: 4, AR299: 4, AR194: 4, AR173: 4, AR216: 4, AR204: 3, AR251: 3, AR219: 3, AR055: 3, AR280: 3, AR267: 3, AR231: 3, AR201: 3, AR224: 3, AR292: 3, AR189: 3, AR182: 3, AR185: 3, AR260: 3, AR198: 3, AR205: 3, AR261: 3, AR294: 3, AR060: 3, AR089: 3, AR096: 3, AR181: 3, AR190: 3, AR183: 3, AR288: 3, AR287: 3, AR240: 3, AR290: 3, AR217: 3, AR300: 3, AR170: 3, AR214: 3, AR273: 3, AR277: 3, AR247: 3, AR233: 3, AR264: 3, AR281: 3, AR175: 3, AR284: 3, AR266: 3, AR249: 3, AR229: 3, AR039: 3, AR316: 3, AR245: 2, AR230: 2, AR228: 2, AR221: 2, AR270: 2, AR296: 2, AR268: 2, AR285: 2, AR298: 2, AR311: 2, AR196: 2, AR177: 2, AR254: 2, AR283: 2, AR176: 2, AR223: 2, AR191: 2, AR180: 2, AR295: 2, AR308: 2, AR314: 2, AR239: 2, AR172: 2, AR225: 2,</p>

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	HMUAP70	674913	789	
	HMUAP70	646810	790	
	HMUAP70	381964	791	
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375	HNGJP69	604891	385	<p>AR313: 28, AR162: 20, AR161: 20, AR163: 19, AR165: 18, AR164: 17, AR089: 16, AR173: 14, AR242: 14, AR096: 14, AR299: 12, AR247: 12, AR300: 11, AR178: 11, AR258: 11, AR193: 11, AR175: 10, AR240: 10, AR262: 10, AR236: 10, AR196: 10, AR039: 10, AR293: 9, AR204: 9, AR257: 9, AR183: 9, AR179: 9, AR218: 9, AR312: 9, AR264: 9, AR185: 9, AR053: 9, AR180: 9, AR269: 9, AR270: 9, AR199: 8, AR191: 8, AR182: 8, AR060: 8, AR192: 8, AR296: 8, AR104: 8, AR229: 8, AR316: 8, AR234: 8, AR277: 7, AR176: 7, AR260: 7, AR282: 7, AR254: 7, AR285: 7, AR297: 7, AR233: 7, AR226: 7, AR174: 7, AR181: 7, AR219: 6, AR274: 6, AR275: 6, AR213: 6, AR238: 6, AR212: 6, AR286: 6, AR189: 6, AR243: 6, AR287: 6, AR197: 6, AR033: 6, AR195: 6, AR201: 6, AR271: 5, AR308: 5, AR291: 5, AR203: 5, AR288: 5, AR263: 5, AR255: 5, AR200: 5, AR177: 5, AR268: 5, AR188: 5, AR198: 5, AR231: 5, AR309: 5, AR205: 5, AR283: 5, AR250: 5, AR171: 5, AR289: 4, AR245: 4, AR295: 4, AR239: 4, AR261: 4, AR267: 4, AR290: 4, AR230: 4, AR237: 4, AR228: 4, AR252: 4, AR266: 4, AR207: 4, AR168: 3, AR210: 3, AR272: 3, AR256: 3, AR235: 3, AR055: 3, AR225: 3, AR227: 3, AR190: 3, AR311: 3, AR223: 2, AR211: 2, AR246: 2, AR232: 2, AR061: 2, AR221: 2, AR253: 1, AR224: 1 S0052: 1</p> <p>AR183: 5, AR266: 5, AR214: 4, AR161: 4, AR162: 4, AR267: 4, AR192: 4, AR269: 4, AR163: 4, AR282: 4, AR181: 4, AR236: 4, AR228: 4, AR182: 3, AR233: 3, AR221: 3, AR309: 3, AR257: 3, AR177: 3, AR288: 3, AR291: 3, AR178: 3, AR180: 3, AR169: 3, AR173: 3, AR229: 3, AR294: 3, AR238: 3, AR168: 3, AR270: 3, AR289: 3, AR293: 3, AR237: 3, AR255: 3, AR171: 3, AR262: 3, AR217: 3, AR230: 3, AR287: 3, AR261: 3, AR224: 3, AR268: 2, AR300: 2, AR216: 2, AR239: 2, AR207: 2, AR286: 2, AR053: 2, AR190: 2, AR285: 2, AR191: 2, AR290: 2, AR232: 2,</p>
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	HNHE142	823723	800		
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401	HOACB38	520201	411		AR242: 23, AR161: 20, AR173: 19, AR162: 19, AR313: 18, AR163: 18, AR165: 18, AR164: 18, AR204: 17, AR166: 17, AR178: 17, AR229: 17, AR258: 16, AR196: 16, AR175: 16, AR300: 15, AR293: 15, AR247: 15, AR180: 15, AR262: 14, AR193: 14, AR257: 13, AR199: 12, AR181: 12, AR233: 12, AR197: 12, AR179: 12, AR176: 12, AR183: 12, AR296: 11, AR234: 11, AR198: 11, AR192: 11, AR226: 11, AR182: 11, AR269: 11, AR238: 11, AR191: 11, AR264: 11, AR236: 11, AR252: 11, AR250: 10, AR240: 10, AR266: 10, AR312: 10, AR270: 10, AR243: 10, AR174: 10, AR177: 10, AR268: 10, AR297: 10, AR201: 10, AR230: 10, AR255: 10, AR312: 10, AR212: 10, AR203: 9, AR231: 9, AR274: 9, AR261: 9, AR299: 9, AR237: 9, AR213: 9, AR253: 9, AR286: 9, AR285: 9, AR294: 9, AR189: 9, AR053: 9, AR239: 8, AR195: 8, AR228: 8, AR309: 8, AR267: 8, AR288: 8, AR200: 8, AR089: 8, AR245: 8, AR295: 7, AR234: 7, AR271: 7, AR287: 7, AR260: 7, AR185: 7, AR282: 7, AR205: 7, AR275: 7, AR188: 7, AR290: 7, AR291: 7, AR289: 6, AR207: 6, AR227: 6, AR256: 6, AR096: 6, AR218: 6, AR263: 6, AR316: 5, AR277: 5, AR272: 5, AR308: 5, AR033: 5, AR235: 5, AR219: 5, AR224: 5, AR061: 5, AR246: 4, AR039: 4, AR060: 4, AR214: 4, AR190: 4, AR232: 4, AR168: 3, AR172: 3, AR216: 3, AR283: 2, AR210: 2, AR211: 2, AR222: 2, AR223: 2, AR055: 2, AR104: 2, AR311: 2, AR171: 1, AR225: 1, AR170: 1, H0252: 1.
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403	HODDF13	684307	413		AR312: 21, AR308: 20, AR205: 19, AR253: 19, AR250: 19, AR309: 19, AR264: 18, AR311: 16, AR212: 16, AR213: 15, AR218: 14, AR096: 14, AR272: 14, AR313: 14, AR263: 14, AR161: 13, AR162: 13, AR163: 13, AR165: 13, AR164: 12, AR175: 12, AR053: 12, AR219: 12, AR089: 12, AR166: 12, AR246: 12, AR178: 11, AR270: 11, AR254: 11, AR271: 11, AR173: 11, AR274: 10, AR039: 10, AR192: 10, AR174: 10, AR176: 10, AR282: 10, AR216: 10, AR189: 10, AR193: 10, AR183: 9, AR221: 9, AR268: 9, AR191: 9, AR252: 9, AR210: 9, AR245: 9, AR172: 9, AR269: 9, AR290: 9, AR197: 9, AR180: 9, AR242: 8, AR217: 8, AR224: 8, AR182: 8, AR215: 8, AR293: 8, AR181: 8, AR288: 8, AR179: 8.

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406	HODDO08	790333	416	<p>AR272: 19, AR218: 19, AR291: 18, AR219: 17, AR039: 15, AR253: 13, AR285: 13, AR180: 13, AR096: 13, AR313: 12,</p>

407	HODDW40	579256	417	AR089: 10, AR287: 10, AR197: 10, AR176: 10, AR255: 10, AR185: 9, AR269: 9, AR245: 9, AR262: 9, AR240: 9, AR243: 9, AR205: 9, AR192: 9, AR165: 9, AR183: 9, AR164: 9, AR295: 8, AR270: 8, AR242: 8, AR193: 8, AR254: 8, AR166: 8, AR296: 8, AR173: 8, AR177: 8, AR266: 8, AR178: 8, AR300: 8, AR316: 8, AR175: 8, AR212: 8, AR162: 8, AR053: 7, AR204: 7, AR258: 7, AR198: 7, AR161: 7, AR163: 7, AR293: 7, AR286: 7, AR299: 7, AR268: 7, AR247: 7, AR060: 7, AR188: 7, AR288: 7, AR182: 7, AR246: 7, AR250: 7, AR201: 7, AR257: 7, AR231: 7, AR189: 7, AR289: 7, AR191: 7, AR181: 7, AR275: 6, AR196: 6, AR104: 6, AR267: 6, AR290: 6, AR271: 6, AR179: 6, AR235: 6, AR297: 6, AR055: 6, AR309: 5, AR229: 5, AR282: 5, AR195: 5, AR200: 5, AR199: 5, AR294: 5, AR207: 5, AR236: 5, AR033: 5, AR312: 5, AR223: 5, AR263: 5, AR225: 5, AR256: 5, AR234: 5, AR238: 5, AR233: 5, AR277: 5, AR226: 5, AR264: 5, AR203: 4, AR237: 4, AR252: 4, AR283: 4, AR174: 4, AR261: 4, AR260: 4, AR213: 4, AR228: 4, AR308: 4, AR214: 4, AR210: 3, AR230: 3, AR215: 3, AR169: 3, AR061: 3, AR239: 3, AR216: 3, AR172: 3, AR222: 3, AR217: 3, AR170: 3, AR168: 3, AR232: 3, AR311: 3, AR211: 3, AR171: 2, AR227: 2, AR274: 2, AR224: 2, L0749: 7, L0776: 6, H0539: 6, L0748: 6, L0731: 6, L0439: 5, H0268: 4, L0770: 4, L0769: 4, L0775: 4, S0328: 4, L0751: 4, S0436: 4, L0593: 4, H0657: 3, S0360: 3, H0252: 3, H0039: 3, H0032: 3, L0766: 3, L0805: 3, L0596: 3, H0733: 3, L0717: 2, H0013: 2, H0599: 2, H0052: 2, H0050: 2, H0428: 2, H0622: 2, H0040: 2, H0264: 2, H0641: 2, S0422: 2, L0774: 2, L0525: 2, L0657: 2, L0809: 2, L0666: 2, L0665: 2, H0521: 2, H0522: 2, S0027: 2, L0743: 2, L0754: 2, L0747: 2, L0780: 2, L0757: 2, L0759: 2, L0591: 2, L0608: 2, L0362: 2, H0422: 2, H0265: 1, H0556: 1, S0342: 1, T0049: 1, H0656: 1, S0212: 1, S0356: 1, S0442: 1, S0358: 1, S0376: 1, S0410: 1, H0637: 1, H0229: 1, S0046: 1, S0300: 1, S0222: 1, H0587: 1, H0486: 1, H0250: 1, H0069: 1, H0156: 1, H0036: 1, S0665: 1, H0318: 1, S0049: 1, H0746: 1, H0184: 1, H0327: 1, H0545: 1, H0457: 1, L0157: 1, L0471: 1, H0620: 1, H0024: 1, H0015: 1, S0388: 1, S6028: 1, H0266: 1, H0271: 1, H0286: 1, H0328: 1, H0070: 1, H0553: 1, H0644: 1, L0055: 1, H0135: 1, H0488: 1, H0433: 1, H0412: 1, H0413: 1, H0059: 1, H0429: 1, H0561: 1, H0633: 1, S0472: 1, S0344: 1, S0002: 1, S0426: 1, L0598: 1, L0520: 1, L0373: 1, L0764: 1, L0771: 1, L0768: 1, L0649: 1, L0375: 1, L0806: 1, L0653: 1, L0659: 1, L0783: 1, L0367: 1, L0663: 1, L2654: 1, S0374: 1, H0519: 1, H0593: 1, H0659: 1, H0672: 1, H0555: 1, L0356: 1, L0740: 1, L0756: 1, L0779: 1, L0777: 1, L0755: 1, L0595: 1, H0665: 1 and S0196: 1. AR171: 9, AR223: 8, AR172: 7, AR168: 7, AR235: 7, AR313: 6, AR214: 6, AR161: 6, AR162: 6, AR264: 6, AR163: 6, AR309: 6, AR291: 6, AR270: 6, AR060: 6, AR165: 5, AR311: 5, AR164: 5, AR039: 5, AR245: 5, AR055: 5, AR096: 5, AR263: 5, AR166: 5, AR296: 5, AR089: 5, AR271: 5, AR308: 5, AR053: 5, AR178: 5, AR275: 4, AR312: 4, AR180: 4, AR176: 4, AR213: 4, AR197: 4, AR274: 4, AR299: 4, AR269: 4, AR175: 4, AR297: 4, AR295: 4, AR182: 4, AR285: 4, AR225: 4, AR282: 4, AR170: 4, AR250: 4, AR217: 4, AR316: 3, AR268: 3, AR173: 3, AR238: 3, AR272: 3, AR224: 3, AR286: 3, AR246: 3, AR266: 3, AR183: 3, AR293: 3, AR290: 3, AR215: 3, AR288: 3, AR277: 3, AR193: 3, AR185: 3, AR236: 3, AR239: 3, AR240: 3, AR231: 3, AR229: 3, AR300: 3, AR287: 3, AR216: 3, AR226: 3, AR294: 3, AR201: 2, AR267: 2, AR232: 2, AR283: 2, AR205: 2, AR219: 2, AR104: 2, AR207: 2, AR181: 2, AR195: 2, AR228: 2, AR237: 2, AR230: 2, AR210: 2, AR260: 2, AR255: 2, AR212: 2, AR236: 2, AR218: 1, AR179: 1, AR033: 1, AR227: 1, AR211: 1, AR252: 1, AR233: 1, AR203: 1, AR196: 1, AR234: 1, H0040: 3, H0739: 1, H0645: 1, H0328: 1, H0519: 1 and H0436: 1.
408	HODEI32	835027	418	AR266: 8, AR176: 7, AR171: 6, AR235: 6, AR170: 5, AR204: 5, AR197: 5, AR055: 5, AR060: 5, AR207: 5, AR161: 5, AR163: 5, AR261: 4, AR309: 4, AR228: 4, AR271: 4, AR182: 4, AR192: 4, AR252: 4, AR214: 4, AR183: 4,



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412	HOEBK34	509951	806	AR300: 1, L0803: 2, S0126: 2, S0250: 1, S0438: 1 and L0774: 1.
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413	HOEDB32	634994	423	L0807: 6, L0747: 5, S0126: 4, L0779: 4, L0771: 3, H0696: 3, L0740: 3, S0358: 2, S0222: 2, L0471: 2, L0772: 2, L0662: 2, L0774: 2, L0809: 2, H0690: 2, H0670: 2, S0378: 2, L0439: 2, L0755: 2, L0757: 2, L0362: 2, T0049: 1, S0180: 1, S0212: 1, H0662: 1, S0442: 1, S0360: 1, H0722: 1, H0208: 1, H0486: 1, T0039: 1, T0040: 1, L2637: 1, L0021: 1, H0327: 1, H0546: 1, H0545: 1, H0123: 1, H0012: 1, H0620: 1, H0024: 1, H0687: 1, H0615: 1, H0551: 1, H0413: 1, T0042: 1, L0065: 1, S0150: 1, L0637: 1, L0646: 1, L0363: 1, L0649: 1, L0775: 1, L0806: 1, L0652: 1, L0661: 1, L0657: 1, L0647: 1, L0793: 1, L0663: 1, L0664: 1, L0708: 1, L2651: 1, H0144: 1, S0374: 1, S0148: 1, H0547: 1, H0539: 1, S0152: 1, S0406: 1, S0028: 1, L0745: 1, L0756: 1, L0780: 1, L0759: 1, S0434: 1, S0436: 1, L0361: 1, S0194: 1 and H0352: 1.
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415	HOEDH84	748236	425	AR170: 4, AR221: 3, AR266: 3, AR033: 3, AR296: 3, AR176: 3, AR311: 2, AR183: 2, AR180: 2, AR286: 2, AR233: 2, AR204: 2, AR232: 2, AR257: 1, AR216: 1, AR291: 1, AR300: 1, AR255: 1, AR172: 1, AR283: 1, AR299: 1, AR225: 1, AR270: 1, S0126: 3, L0731: 2, S0040: 1, S0356: 1, H0370: 1, H0031: 1 and H0633: 1.
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417	HOFMQ33	1184465	427	AR205: 90, AR212: 77, AR245: 75, AR274: 68, AR272: 67, AR216: 65, AR246: 62, AR252: 60, AR308: 59, AR213: 59, AR214: 55, AR312: 54, AR215: 54, AR197: 50, AR309: 50, AR254: 50, AR053: 50, AR217: 49, AR171: 49, AR221: 49, AR195: 48, AR311: 45, AR225: 45, AR223: 44, AR264: 44, AR170: 44, AR189: 44, AR199: 43, AR210: 43, AR263: 43, AR168: 43, AR247: 43, AR243: 41, AR224: 41, AR172: 41, AR253: 40, AR222: 40, AR169: 39, AR164: 37, AR250: 37, AR174: 37, AR271: 36, AR166: 36, AR198: 36, AR165: 36, AR201: 34, AR188: 34, AR162: 34, AR190: 32, AR163: 32, AR242: 32, AR161: 32, AR204: 29, AR193: 28, AR173: 27, AR192: 26, AR313: 26, AR236: 25, AR291: 24, AR177: 24, AR275: 24, AR290: 24, AR256: 23, AR039: 22, AR262: 22, AR096: 22, AR191: 22, AR240: 22, AR219: 22, AR200: 22, AR185: 22, AR179: 21, AR218: 21, AR089: 21, AR203: 20, AR300: 20, AR288: 20, AR175: 20, AR297: 20, AR289: 20, AR295: 19, AR255: 19, AR261: 19, AR299: 19, AR203: 19, AR207: 19, AR293: 18, AR196: 18, AR268: 17, AR237: 17, AR296: 17, AR258: 17, AR282: 16, AR316: 16, AR285: 16, AR231: 15, AR269: 15, AR257: 15, AR178: 14, AR234: 14, AR287: 14, AR181: 14, AR230: 14, AR033: 14, AR260: 14, AR267: 14, AR061: 14, AR233: 14, AR239: 14, AR183: 13, AR266: 13, AR270: 13, AR229: 13, AR286: 13, AR277: 12, AR180: 12, AR060: 12, AR238: 12, AR226: 12, AR232: 12, AR176: 12, AR227: 11, AR294: 11, AR228: 10, AR283: 9, AR235: 9, AR182: 8, AR104: 7, AR055: 5, H0415: 1.

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	HOFMQ33	906694	809	
	HOFMQ33	902639	810	
	HOFMQ33	702186	811	
418	HOFMT75	911180	428	AR192: 4, AR225: 3, AR217: 2, AR235: 2, AR172: 2, AR171: 2, AR183: 2, AR254: 2, AR168: 2, AR266: 2, AR170: 1, AR309: 1, AR193: 1, AR180: 1, AR270: 1, AR175: 1, AR282: 1, AR165: 1, AR224: 1, AR277: 1, AR164: 1, AR300: 1, AR264: 1, AR039: 1, AR216: 1, AR291: 1, AR240: 1, H0415: 3, S0002: 2, S0212: 1, H0255: 1, S0358: 1, H0318: 1, H0045: 1, H0264: 1, S0144: 1, H0555: 1 and L0741: 1.
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	HOFMT75	892308	813	
	HOFMT75	892291	814	
419	HOFNC14	1352378	429	AR263: 5, AR171: 4, AR213: 4, AR282: 4, AR205: 3, AR169: 3, AR235: 3, AR246: 3, AR162: 2, AR161: 2, AR180: 2, AR221: 2, AR178: 2, AR176: 2, AR245: 2, AR287: 2, AR183: 2, AR163: 2, AR311: 2, AR089: 1, AR309: 1, AR264: 1, AR104: 1, AR033: 1, AR191: 1, AR230: 1, H0415: 1
	HOFNC14	899292	815	
420	HOFND85	847424	430	AR165: 3, AR162: 3, AR170: 3, AR241: 3, AR221: 2, AR171: 2, AR169: 2, AR269: 2, AR201: 2, AR195: 2, AR164: 2, AR166: 2, AR272: 2, AR212: 2, AR180: 2, AR210: 2, AR193: 2, AR204: 2, AR236: 2, AR294: 2, AR246: 2, AR243: 2, AR199: 1, AR284: 1, AR203: 1, AR282: 1, AR310: 1, AR273: 1, AR161: 1, AR096: 1, AR163: 1, AR089: 1, AR183: 1, AR283: 1, AR288: 1
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	HOF0C33	878690	817	
	HOF0C33	905734	818	
	HOF0C33	902326	819	
	HOF0C33	885140	820	
	HOF0C33	806819	821	
423	HOF0C73	931871	433	AR294: 16, AR169: 6, AR245: 6, AR192: 6, AR170: 6, AR195: 6, AR263: 5, AR039: 5, AR164: 4, AR165: 4, AR215: 4, AR053: 4, AR266: 4, AR172: 4, AR161: 4, AR212: 4, AR162: 4, AR089: 4, AR222: 4, AR223: 4, AR213: 4, AR274: 4, AR261: 3, AR254: 3, AR272: 3, AR221: 3, AR264: 3, AR171: 3, AR205: 3, AR225: 3, AR168: 3, AR193: 3, AR060: 3, AR217: 3, AR277: 3, AR096: 3, AR224: 3, AR282: 3, AR175: 3, AR308: 3, AR312: 3, AR214: 3, AR196: 3, AR288: 3.

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	HFOC73	907072	823	
	HFOC73	878863	824	
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	HPDWP28	1047702	838	
445	HPEAD48	520367	455	AR196: 9, AR161: 9, AR162: 9, AR163: 8, AR173: 8, AR169: 8, AR171: 8, AR313: 7, AR168: 7, AR223: 7, AR175: 6, AR263: 6, AR240: 6, AR096: 6, AR258: 6, AR180: 5, AR264: 5, AR261: 5, AR262: 5, AR257: 5, AR229: 5, AR176: 5, AR165: 5, AR300: 5, AR282: 5, AR164: 5, AR214: 5, AR269: 5, AR185: 5, AR275: 5, AR089: 5, AR166: 5, AR274: 4, AR270: 4, AR174: 4, AR199: 4, AR181: 4, AR217: 4, AR179: 4, AR191: 4, AR253: 4, AR247: 4, AR183: 4, AR234: 4, AR170: 4, AR266: 4, AR177: 4, AR299: 4, AR218: 4, AR236: 4, AR309: 4, AR312: 4, AR238: 4, AR316: 4, AR233: 4, AR235: 4, AR189: 4, AR215: 4, AR213: 4, AR311: 4, AR225: 3, AR224: 3, AR277: 3, AR293: 3, AR200: 3, AR212: 3, AR104: 3, AR033: 3, AR178: 3, AR226: 3, AR255: 3, AR230: 3, AR296: 3, AR268: 3, AR060: 3, AR203: 3, AR291: 3, AR188: 3, AR237: 3, AR172: 3, AR182: 3, AR285: 3, AR283: 3, AR198: 3, AR216: 2, AR192: 2, AR219: 2, AR228: 2, AR227: 2, AR295: 2, AR287: 2, AR267: 2, AR286: 2, AR260: 2, AR294: 2, AR239: 2, AR231: 2, AR297: 2, AR201: 2, AR290: 2, AR222: 2, AR053: 2, AR272: 2, AR190: 2, AR289: 2, AR288: 2, AR256: 2, AR204: 2, AR232: 2, AR207: 1, AR210: 1, AR055: 1, AR197: 1, AR193: 1, AR308: 1, AR205: 1, H0165: 1
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451	HP/BO15	590741	839		
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452	HP/ICB53	867835	840		
	HP/JBK12	1011467	462		AR215: 5, AR197: 4, AR039: 4, AR309: 4, AR245: 4, AR161: 3, AR162: 3, AR163: 3, AR204: 3, AR165: 3, AR225: 3, AR169: 3, AR264: 3, AR282: 3, AR272: 3, AR089: 3, AR180: 3, AR213: 3, AR172: 3, AR253: 2, AR166: 2, AR212: 2, AR193: 2, AR252: 2, AR312: 2, AR271: 2, AR275: 2, AR164: 2, AR060: 2, AR240: 2, AR216: 2, AR266: 2, AR201: 2, AR205: 2, AR183: 2, AR176: 2, AR195: 2, AR223: 2, AR283: 2, AR277: 1, AR311: 1, AR247: 1, AR313: 1, AR242: 1, AR199: 1, AR299: 1, AR316: 1, AR188: 1, AR104: 1, AR185: 1, AR291: 1, AR287: 1, AR231: 1, AR294: 1, AR230: 1, AR096: 1, S0152: 2
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	HP/JBK12	796925	842		
	HP/JBK12	699587	843		
453	HP/ICL22	11146674	463		AR313: 19, AR039: 18, AR299: 10, AR300: 10, AR089: 9, AR096: 9, AR277: 8, AR185: 8, AR240: 7, AR316: 7, AR104: 6, AR218: 6, AR060: 5, AR055: 4, AR282: 4, AR219: 4, AR283: 2, H0619: 2, H0484: 1, H0600: 1, H0553: 1, H0056: 1, L0766: 1, L0665: 1, H0693: 1, H0593: 1, S0152: 1, H0521: 1, L0754: 1, H0543: 1 and H0423: 1.
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	HP/ICL22	1046434	845		
454	HP/ICW04	589969	464		AR313: 17, AR165: 14, AR164: 13, AR166: 13, AR162: 13, AR161: 13, AR163: 12, AR196: 12, AR089: 11, AR229: 10, AR235: 10, AR181: 10, AR252: 10, AR236: 10, AR178: 9, AR300: 9, AR299: 9, AR247: 9, AR173: 9, AR213: 9, AR293:



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	HPJEX20	975252	847	
	HPJEX20	894744	848	
	HPJEX20	898220	849	
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459	HPQAC69	396804	469	<p>AR262: 24, AR287: 24, AR203: 23, AR293: 23, AR260: 23, AR182: 22, AR228: 22, AR285: 21, AR239: 20, AR226: 20, AR193: 19, AR269: 19, AR161: 19, AR288: 19, AR165: 19, AR267: 18, AR163: 18, AR164: 18, AR166: 17, AR200: 17, AR229: 17, AR295: 16, AR204: 16, AR199: 16, AR237: 16, AR270: 16, AR176: 16, AR175: 15, AR190: 15, AR300: 15, AR275: 15, AR232: 15, AR268: 14, AR261: 14, AR179: 14, AR238: 14, AR173: 13, AR061: 13, AR247: 13, AR230: 12, AR291: 12, AR242: 12, AR033: 12, AR191: 11, AR290: 11, AR189: 11, AR183: 11, AR236: 11, AR178: 11, AR266: 11, AR055: 10, AR174: 10, AR195: 10, AR196: 10, AR201: 10, AR240: 10, AR274: 9, AR308: 9, AR180: 9, AR289: 9, AR213: 9, AR192: 9, AR185: 9, AR212: 8, AR282: 8, AR312: 8, AR243: 8, AR235: 8, AR205: 8, AR283: 8, AR254: 7, AR053: 7, AR197: 7, AR316: 7, AR256: 7, AR177: 7, AR060: 7, AR250: 7, AR296: 7, AR252: 7, AR181: 7, AR188: 6, AR272: 6, AR311: 6, AR264: 6, AR198: 6, AR089: 6, AR299: 5, AR209: 5, AR246: 5, AR245: 5, AR253: 5, AR218: 4, AR215: 4, AR214: 4, AR313: 4, AR216: 4, AR271: 4, AR168: 4, AR207: 4, AR039: 3, AR221: 3, AR169: 3, AR277: 3, AR219: 3, AR096: 3, AR170: 3, AR263: 3, AR222: 2, AR225: 2, AR172: 2, AR171: 2, AR104: 2, AR223: 2, AR024: 171, H0123: 156, S0027: 114, S0126: 81, H0144: 79, S0014: 79, S0022: 68, S0040: 63, H0050: 62, S0037: 60, H0013: 58, H0619: 54, S0011: 54, H0251: 49, S0028: 48, S0250: 47, H0252: 37, H0081: 36, H0135: 35, L0589: 30, H0100: 29, H0486: 28, H0620: 25, L0565: 23, H0124: 20, H0333: 19, S0212: 18, H0041: 18, H0242: 17, S0032: 17, H0645: 15, S0356: 14, T0039: 13, H0012: 11, H0624: 10, S0342: 10, S0210: 10, S0192: 10, S0194: 10, S0418: 9, L0754: 9, S3012: 8, H0586: 7, H0309: 7, T0023: 7, H0551: 7, L0748: 7, L0603: 7, S0420: 6, S0360: 6, H0208: 6, S0390: 6, L0750: 6, H0352: 6, H0381: 5, T0040: 5, H0427: 5, H0544: 5, H0292: 5, H0039: 5, H0622: 5, H0598: 5, L0751: 5, H0265: 4, H0370: 4, H0505: 4, H0086: 4, H0051: 4, H0594: 4, H0031: 4, H0087: 4, S0124: 4, L0740: 4, L0605: 4, S0116: 3, H0255: 3, H0587: 3, H0644: 3, H0617: 3, S0208: 3, S0026: 3, H0171: 2, H0294: 2, S0376: 2, H0360: 2, H0546: 2, H0172: 2, L0471: 2, H0057: 2, S0003: 2, H0628: 2, H0163: 2, H0090: 2, H0646: 2, H0538: 2, L0375: 2, H0658: 2, H0660: 2, S0332: 2, L0755: 2, L0757: 2, H0343: 2, H0595: 2, H0170: 1, H0295: 1, S0114: 1, S0001: 1, H0663: 1, S0354: 1, H0393: 1, H0431: 1, H0392: 1, H0485: 1, L0022: 1, T0082: 1, H0421: 1, H0209: 1, H0023: 1, H0099: 1, H0266: 1, H0288: 1, H0615: 1, L0053: 1, H0606: 1, H0169: 1, H0316: 1, H0038: 1, H0040: 1, H0616: 1, T0067: 1, H0488: 1, H0059: 1, H0102: 1, L0564: 1, T0041: 1, S0382: 1, H0647: 1, L0598: 1, S0052: 1, T0068: 1, H0519: 1, H0528: 1, S0004: 1, H0555: 1, H0436: 1, H0627: 1, L0611: 1, S0432: 1, L0743: 1, L0744: 1, L0756: 1, L0759: 1, L0599: 1, L0593: 1, H0667: 1, S0276: 1, S0196: 1, S0458: 1, S0462: 1 and H0293: 1.</p>
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461	HPRBF19	753282	471	AR089: 12, AR060: 10, AR165: 8, AR161: 8, AR162: 8, AR163: 8, AR164: 8, AR166: 8, AR242: 7, AR299: 7, AR039: 6, AR055: 5, AR244: 5, AR096: 5, AR185: 5, AR205: 5, AR282: 5, AR202: 5, AR240: 5, AR199: 4, AR250: 4, AR246: 4, AR264: 4, AR316: 4, AR300: 4, AR277: 4, AR207: 4, AR243: 4, AR251: 4, AR206: 4, AR235: 4, AR176: 4, AR181: 4, AR313: 3, AR273: 3, AR283: 3, AR265: 3, AR225: 3, AR188: 3, AR171: 3, AR104: 3, AR193: 3, AR266: 3, AR218: 3, AR201: 3, AR311: 3, AR245: 3, AR234: 3, AR310: 3, AR200: 3, AR172: 3, AR228: 3, AR052: 2, AR269: 2, AR252: 2, AR203: 2, AR195: 2, AR236: 2, AR196: 2, AR173: 2, AR183: 2, AR257: 2, AR262: 2, AR182: 2, AR254: 2, AR191: 2, AR255: 2, AR186: 2, AR270: 2, AR204: 2, AR197: 2, AR309: 2, AR229: 2, AR308: 2, AR288: 2, AR174: 2, AR061: 2, AR231: 2, AR190: 2, AR287: 2, AR233: 2, AR178: 2, AR271: 2, AR247: 2, AR267: 2, AR253: 2, AR297: 2, AR168: 2, AR239: 2, AR179: 2, AR274: 2, AR261: 2, AR312: 2, AR296: 2, AR180: 2, AR214: 2, AR221: 2, AR285: 2, AR189: 2, AR294: 2, AR033: 2, AR175: 2, AR217: 2, AR272: 1, AR237: 1, AR238: 1, AR291: 1, AR286: 1, AR198: 1, AR293: 1, AR226: 1, AR223: 1, AR177: 1, AR290: 1, AR224: 1, AR268: 1, AR295: 1, AR284: 1, AR213: 1, AR053: 1, AR230: 1, S0410: 9, L0771: 7, L0662: 7, S0436: 3, L0362: 2, S0444: 1, S0360: 1, H0370: 1, L0021: 1, H0575: 1, H0036: 1, H0204: 1, H0046: 1, L0483: 1, H0032: 1, S0440: 1, H0647: 1, L0772: 1, L0646: 1, L0806: 1, L0659: 1, L0791: 1 and L4501: 1.
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463	HPTVX32	634353	473	<p>AR309: 2, AR277: 2, AR104: 2, AR039: 2, AR175: 2, AR272: 2, AR288: 2, AR299: 2, AR178: 2, AR263: 2, AR312: 2, AR188: 2, AR291: 2, AR226: 2, AR219: 2, AR297: 2, AR166: 2, AR262: 2, AR296: 2, AR203: 2, AR258: 2, AR177: 2, AR289: 2, AR227: 2, AR311: 1, AR264: 1, AR173: 1, AR222: 1, AR254: 1, AR268: 1, AR260: 1, AR198: 1, AR218: 1, AR232: 1, AR174: 1, AR210: 1, H0424: 3, H0637: 2, H0213: 2, H0265: 1, H0556: 1, L0375: 1 and L0530: 1.</p> <p>AR271: 22, AR061: 18, AR197: 18, AR104: 17, AR199: 16, AR195: 16, AR192: 14, AR033: 14, AR238: 12, AR246: 12, AR226: 12, AR272: 11, AR188: 10, AR239: 10, AR089: 10, AR185: 10, AR253: 9, AR161: 9, AR162: 9, AR196: 9, AR198: 9, AR163: 9, AR245: 9, AR232: 8, AR201: 8, AR177: 8, AR242: 8, AR254: 8, AR164: 8, AR247: 8, AR189: 8, AR165: 7, AR274: 7, AR227: 7, AR237: 7, AR166: 7, AR223: 7, AR215: 7, AR275: 6, AR231: 6, AR207: 6, AR053: 6, AR240: 6, AR039: 6, AR183: 6, AR309: 6, AR277: 6, AR174: 6, AR243: 6, AR316: 6, AR193: 6, AR173: 5, AR217: 5, AR269: 5, AR191: 5, AR228: 5, AR313: 5, AR176: 5, AR308: 5, AR235: 5, AR264: 5, AR212: 5, AR221: 5, AR311: 5, AR263: 5, AR204: 5, AR200: 5, AR216: 5, AR205: 5, AR190: 5, AR234: 5, AR096: 5, AR175: 4, AR060: 4, AR312: 4, AR213: 4, AR169: 4, AR214: 4, AR219: 4, AR250: 4, AR170: 4, AR290: 4, AR224: 4, AR230: 4, AR168: 4, AR178: 4, AR270: 4, AR300: 4, AR218: 4, AR225: 4, AR268: 4, AR233: 4, AR222: 4, AR229: 3, AR210: 3, AR299: 3, AR283: 3, AR291: 3, AR203: 3, AR055: 3, AR180: 3, AR282: 3, AR182: 3, AR255: 3, AR289: 3, AR287: 3, AR288: 3, AR181: 3, AR267: 3, AR257: 3, AR294: 3, AR261: 3, AR171: 3, AR295: 3, AR296: 3, AR236: 3, AR172: 3, AR262: 2, AR286: 2, AR285: 2, AR293: 2, AR179: 2, AR297: 2, AR258: 2, AR211: 2, AR256: 1, H0046: 6, L0758: 5, L0803: 4, H0052: 3, H0424: 3, L0794: 3, L0779: 3, H0618: 2, H0135: 2, L0809: 2, L0789: 2, H0690: 2, S014: 2, L0743: 2, L0751: 2, L0731: 2, H0295: 1, S0001: 1, S0282: 1, H0484: 1, H0306: 1, S0360: 1, S0278: 1, S6022: 1, H0669: 1, H0544: 1, H0457: 1, H0031: 1, H0316: 1, S0002: 1, L0800: 1, L0643: 1, L0764: 1, L0773: 1, L0650: 1, L0774: 1, L0655: 1, L0658: 1, L0659: 1, L0664: 1, L0665: 1, S0052: 1, H0547: 1, H0435: 1, H0658: 1, H0670: 1, H0521: 1, S0037: 1, L0748: 1, L0599: 1, L0601: 1 and L0603: 1.</p>
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465	HPWAY46	1001560	475	<p>AR104: 20, AR272: 17, AR185: 15, AR293: 14, AR237: 14, AR230: 13, AR296: 13, AR161: 12, AR234: 12, AR162: 12, AR283: 12, AR163: 12, AR294: 12, AR227: 11, AR274: 11, AR228: 11, AR233: 10, AR297: 10, AR096: 10, AR252: 10, AR289: 9, AR061: 9, AR231: 9, AR239: 9, AR165: 9, AR308: 9, AR164: 9, AR257: 9, AR232: 9, AR166: 8, AR275: 8, AR235: 8, AR313: 8, AR060: 8, AR055: 8, AR291: 8, AR169: 7, AR089: 7, AR177: 7, AR311: 7, AR263: 7, AR254: 7, AR287: 7, AR262: 7, AR178: 7, AR295: 7, AR285: 7, AR275: 7, AR033: 7, AR247: 6, AR255: 6, AR309: 6, AR236: 6, AR300: 6, AR316: 6, AR261: 6, AR179: 6, AR277: 6, AR226: 6, AR299: 6, AR213: 6, AR225: 6, AR176: 6, AR312: 5, AR053: 5, AR266: 5, AR290: 5, AR238: 5, AR245: 5, AR282: 5, AR286: 5, AR181: 5, AR039: 5, AR174: 5, AR212: 5, AR200: 5, AR288: 5, AR204: 4, AR264: 4, AR242: 4, AR171: 4, AR240: 4, AR172: 4, AR182: 4, AR267: 4, AR195: 4, AR214: 4, AR270: 4, AR198: 4, AR246: 4, AR269: 4, AR190: 4, AR168: 3, AR192: 3, AR197: 3, AR223: 3, AR268: 3, AR222: 3, AR193: 3, AR175: 3, AR170: 3, AR205: 3, AR258: 3, AR189: 3, AR224: 3, AR207: 3, AR250: 3, AR173: 3, AR217: 3, AR188: 3, AR196: 3, AR180: 3, AR243: 2, AR191: 2, AR201: 2, AR203: 2, AR183: 2, AR199: 1, AR210: 1, AR260: 1, AR215: 1, AR253: 1, AR216: 1, AR221: 1, S0408: 4, L0666: 4, S0360: 2, S0374: 2, S0356: 1, S0376: 1, H0730: 1, S0222: 1, H0150: 1, L0774: 1, L0634: 1, L0790: 1, L0665: 1, H0781: 1, H0689: 1, S0044: 1, S0406: 1, H0555: 1, L0777: 1.</p>

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	HRACD80	740762	858	
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502	HSIDX71	902162	868		



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	HSJBQ79	371784	870	
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	HSQE084	401251	880	
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	HTEGI42	850770	899	
	HTEGI42	847564	900	
	HTEGI42	830165	901	
546	HTEHR24	835894	556	AR161: 5, AR162: 5, AR163: 5, AR176: 5, AR180: 4, AR060: 3, AR055: 3, AR269: 3, AR300: 3, AR181: 3, AR228: 3, AR170: 3, AR166: 3, AR233: 3, AR257: 3, AR168: 3, AR177: 3, AR165: 3, AR255: 3, AR164: 3, AR216: 3, AR172: 3, AR236: 2, AR201: 2, AR288: 2, AR271: 2, AR229: 2, AR200: 2, AR268: 2, AR225: 2, AR239: 2, AR178: 2, AR266: 2, AR309: 2, AR179: 2, AR247: 2, AR234: 2, AR237: 2, AR286: 2, AR291: 2, AR282: 2, AR240: 2, AR290: 2, AR238: 2, AR182: 2, AR089: 2, AR270: 2, AR253: 2, AR227: 2, AR207: 2, AR223: 2, AR287: 2, AR275: 2, AR297: 2, AR293: 2, AR174: 2, AR264: 2, AR294: 2, AR203: 2, AR193: 2, AR185: 2, AR235: 2, AR190: 2, AR231: 2, AR175: 2, AR196: 2, AR261: 2, AR198: 2, AR104: 2, AR171: 2, AR262: 2, AR316: 2, AR195: 2, AR295: 2, AR311: 2, AR285: 2, AR061: 2, AR296: 2, AR222: 2, AR274: 2, AR267: 2, AR189: 1, AR191: 1, AR312: 1, AR277: 1, AR283: 1, AR226: 1, AR214: 1, AR205: 1, AR299: 1, AR250: 1, AR217: 1, AR230: 1, AR308: 1, AR096: 1, AR183: 1, AR289: 1, AR213: 1, AR204: 1, AR313: 1, AR173: 1, AR246: 1, AR272: 1, AR232: 1, L0766: 8, L0803: 6, L0758: 5, H0038: 4, L0805: 3, H0144: 3, L0743: 3, H0550: 2, H0013: 2, H0457: 2, L0471: 2, H0616: 2, L0800: 2, L0794: 2, L0774: 2, L0776: 2, H0710: 2, H0521: 2, L0754: 2, L0745: 2, H0341: 1, H0728: 1, H0735: 1, H0392: 1, H0069: 1, H0635: 1, H0318: 1, H0581: 1, H0309: 1, H0012: 1, H0083: 1, H0179: 1, H0039: 1, S0036: 1, H0090: 1, S0440: 1, L0763: 1, L0761: 1, L0372: 1, L0662: 1, L0806: 1, L0807: 1, L0659: 1, L5622: 1, L0788: 1, L0791: 1, L0793: 1, L0666: 1, S0428: 1, S0126: 1, S0027: 1, S0028: 1, L0740: 1, L0756: 1, L0752: 1, L0731: 1, L0588: 1, L0591: 1, S0026: 1, S0242: 1, H0423: 1 and H0293: 1.
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548	HTEIP36	520468	558	AR162: 8, AR161: 7, AR163: 7, AR235: 7, AR229: 6, AR183: 6, AR176: 6, AR173: 6, AR313: 5, AR178: 5, AR266: 5, AR309: 5, AR233: 5, AR165: 5, AR181: 5, AR257: 5, AR164: 5, AR182: 5, AR274: 5, AR166: 4, AR221: 4, AR275: 4, AR175: 4, AR264: 4, AR300: 4, AR228: 4, AR268: 4, AR261: 4, AR096: 4, AR269: 4, AR293: 4, AR262: 4, AR270: 4, AR267: 4, AR196: 4, AR089: 4, AR231: 4, AR291: 4, AR238: 4, AR177: 4, AR226: 4, AR247: 4, AR282: 4, AR255: 3, AR185: 3, AR239: 3, AR234: 3, AR237: 3, AR179: 3, AR277: 3, AR274: 3, AR289: 3, AR188: 3, AR258: 3, AR236: 3, AR199: 3, AR316: 3, AR225: 3, AR060: 3, AR290: 3, AR250: 3, AR227: 3, AR203: 3, AR297: 3, AR191: 3.



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552	HTEPG70	834931	562	AR245: 19, AR163: 19, AR261: 18, AR242: 18, AR313: 17, AR205: 17, AR193: 17, AR196: 17, AR060: 16, AR219: 16, AR246: 16, AR033: 16, AR218: 16, AR181: 16, AR039: 16, AR229: 16, AR300: 15, AR176: 15, AR174: 15, AR275: 15, AR185: 14, AR288: 14, AR274: 14, AR250: 13, AR238: 13, AR295: 13, AR237: 12, AR243: 12, AR232: 11, AR239: 11, AR247: 11, AR289: 11, AR183: 11, AR291: 10, AR234: 10, AR188: 10, AR226: 10, AR175: 10, AR231: 10, AR285: 10, AR204: 10, AR293: 10, AR227: 10, AR173: 10, AR200: 10, AR199: 10, AR296: 10, AR211: 10, AR061: 10, AR178: 10, AR268: 10, AR266: 10, AR180: 10, AR255: 10, AR258: 9, AR233: 9, AR262: 9, AR286: 9, AR191: 9, AR230: 9, AR257: 9, AR267: 9, AR267: 9, AR254: 9, AR189: 9, AR210: 9, AR269: 9, AR270: 8, AR260: 8, AR287: 8, AR256: 8, AR190: 8, AR182: 7, AR294: 7, AR179: 7, AR203: 7, AR290: 6, L0794: 7, L0779: 3, L0758: 3, H0559: 1, H0616: 1 and L0767: 1.
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558	HTHDS25	772559	568	<p>2, S0027: 2, L0439: 2, L0740: 2, L0779: 2, L0753: 2, S0436: 2, H0739: 1, H0170: 1, H0556: 1, L3643: 1, L3644: 1, S0040: 1, H0295: 1, S0430: 1, S0212: 1, H0662: 1, S0420: 1, L0003: 1, S0358: 1, S0408: 1, H0729: 1, H0728: 1, H0735: 1, H0734: 1, H0645: 1, H0619: 1, H0600: 1, H0592: 1, H0486: 1, H0013: 1, H0042: 1, H0706: 1, S0010: 1, H0581: 1, H0196: 1, H0052: 1, H0263: 1, H0544: 1, H0150: 1, H0009: 1, H0123: 1, H0023: 1, H0200: 1, H0039: 1, H0644: 1, L0143: 1, H0606: 1, L0055: 1, H0673: 1, H0674: 1, S0366: 1, H0124: 1, S0366: 1, H0135: 1, H0163: 1, H0063: 1, H0264: 1, H0561: 1, S0466: 1, H0652: 1, S0344: 1, S0002: 1, L0369: 1, L0520: 1, L0637: 1, L3904: 1, L0764: 1, L0768: 1, L0549: 1, L5564: 1, L0803: 1, L0774: 1, L0806: 1, L0654: 1, L0659: 1, L0526: 1, L0783: 1, L5622: 1, L0793: 1, L2263: 1, L0710: 1, L2262: 1, H0724: 1, L3216: 1, H0658: 1, H0522: 1, H0696: 1, H0727: 1, S3012: 1, S0032: 1, L0750: 1, L0755: 1, H0445: 1, S0434: 1, L0596: 1, H0604: 1, H0543: 1 and H0423: 1.</p> <p>AR1313: 26, AR096: 17, AR163: 16, AR165: 16, AR166: 16, AR162: 16, AR164: 15, AR173: 15, AR089: 15, AR183: 14, AR178: 14, AR175: 14, AR247: 14, AR293: 13, AR192: 13, AR308: 13, AR181: 13, AR299: 12, AR176: 12, AR229: 12, AR242: 12, AR180: 11, AR269: 11, AR182: 10, AR300: 10, AR179: 10, AR264: 10, AR258: 10, AR226: 10, AR233: 10, AR240: 10, AR268: 10, AR104: 9, AR312: 9, AR275: 9, AR238: 9, AR212: 9, AR053: 9, AR174: 9, AR218: 9, AR196: 9, AR296: 9, AR177: 9, AR262: 9, AR282: 9, AR245: 8, AR257: 8, AR198: 8, AR197: 8, AR316: 8, AR270: 8, AR228: 8, AR185: 8, AR204: 8, AR060: 8, AR200: 8, AR234: 8, AR309: 8, AR297: 8, AR286: 8, AR266: 8, AR039: 7, AR236: 7, AR285: 7, AR239: 7, AR267: 7, AR274: 7, AR231: 7, AR237: 7, AR193: 7, AR294: 7, AR203: 7, AR195: 6, AR213: 6, AR261: 6, AR263: 6, AR287: 6, AR290: 6, AR191: 6, AR277: 6, AR199: 6, AR033: 6, AR295: 6, AR243: 6, AR201: 6, AR289: 6, AR230: 6, AR235: 6, AR255: 6, AR291: 6, AR260: 5, AR227: 5, AR205: 5, AR256: 5, AR219: 5, AR271: 5, AR207: 5, AR189: 5, AR288: 5, AR061: 5, AR272: 5, AR250: 5, AR223: 4, AR246: 4, AR214: 4, AR055: 4, AR188: 4, AR232: 4, AR283: 4, AR170: 4, AR254: 3, AR169: 3, AR171: 3, AR221: 3, AR253: 3, AR311: 3, AR190: 3, AR224: 3, AR215: 3, AR210: 2, AR168: 2, AR222: 2, AR225: 2, AR172: 2, AR211: 1, AR216: 1, AR217: 1, H0063: 1, T0067: 1 and L0662: 1.</p>
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560	HTJML75	1040047	570	<p>AR060: 649, AR055: 574, AR089: 351, AR104: 347, AR299: 273, AR185: 273, AR283: 264, AR039: 256, AR277: 206, AR282: 198, AR316: 168, AR096: 156, AR300: 130, AR240: 129, AR313: 65, AR219: 62, AR218: 61, AR169: 4, AR170: 3, AR269: 3, AR176: 3, AR053: 3, AR178: 2, AR223: 2, AR261: 2, AR221: 2, AR164: 2, AR171: 2, AR274: 2, AR190: 2, AR212: 2, AR288: 2, AR161: 1, AR225: 1, AR267: 1, AR264: 1, AR294: 1, AR290: 1, AR272: 1, AR311: 1,</p>

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	HTOHRM15	848200	914	
	HTOHRM15	848196	915	
576	HTOHT18	628300	586	AR252: 6, AR245: 5, AR294: 5, AR207: 4, AR269: 4, AR204: 4, AR171: 4, AR234: 4, AR289: 3, AR231: 3, AR296: 3, AR221: 3, AR243: 3, AR214: 3, AR238: 3, AR182: 3, AR165: 3, AR223: 2, AR201: 2, AR164: 2, AR166: 2, AR217: 2, AR242: 2, AR267: 2, AR181: 2, AR168: 2, AR177: 2, AR240: 2, AR293: 2, AR216: 2, AR313: 2, AR271: 2, AR264: 2, AR212: 2, AR200: 2, AR060: 2, AR282: 2, AR262: 2, AR233: 2, AR225: 2, AR190: 2, AR260: 2, AR239: 2, AR199: 2, AR300: 2, AR061: 2, AR309: 2, AR039: 2, AR247: 2, AR203: 2, AR089: 2, AR224: 1, AR222: 1, AR290: 1, AR277: 1, AR257: 1, AR258: 1, AR232: 1, AR316: 1, AR185: 1, AR308: 1, AR193: 1, AR173: 1, AR196: 1, AR268: 1, AR183: 1, AR311: 1, AR172: 1, AR205: 1, AR219: 1, AR211: 1, L0766: 7, H0616: 4, L0601: 4, L0779: 3, L0758: 3, L0794: 2, L0747: 2, L0777: 2, H0657: 1, S0358: 1, S0045: 1, S0140: 1, H0370: 1, H0574: 1, H0318: 1, H0597: 1, H0545: 1, H0081: 1, S0050: 1, H0014: 1, H0290: 1, H0328: 1, H0264: 1, H0494: 1, L0645: 1, L0805: 1, L0652: 1, L0789: 1, L0749: 1 and L0750: 1.
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578	HTOIZ02	826312	588	<p>AR294: 3, AR273: 3, AR260: 3, AR033: 3, AR229: 3, AR202: 3, AR226: 3, AR216: 3, AR171: 3, AR299: 3, AR263: 3, AR316: 3, AR239: 3, AR217: 3, AR298: 2, AR055: 2, AR227: 2, AR232: 2, AR214: 2, AR310: 2, AR231: 2, AR096: 2, AR286: 2, AR039: 2, AR211: 2, AR284: 2, AR265: 2, AR061: 2, AR210: 2, AR219: 2, AR267: 2, AR251: 2, AR266: 2, AR218: 2, AR194: 1, AR169: 1, AR292: 1, AR104: 1, AR283: 1, AR256: 1, S0114: 1 and H0264: 1.</p> <p>AR192: 8, AR161: 7, AR162: 7, AR163: 7, AR089: 7, AR165: 6, AR166: 6, AR164: 6, AR313: 6, AR180: 6, AR243: 5, AR242: 5, AR207: 5, AR096: 5, AR246: 5, AR053: 5, AR178: 4, AR275: 4, AR274: 4, AR173: 4, AR264: 4, AR266: 4, AR060: 4, AR039: 4, AR309: 4, AR282: 3, AR213: 3, AR271: 3, AR272: 3, AR193: 3, AR229: 3, AR212: 3, AR175: 3, AR312: 3, AR104: 3, AR176: 3, AR217: 3, AR228: 3, AR269: 3, AR239: 3, AR270: 3, AR201: 3, AR238: 3, AR182: 3, AR316: 3, AR277: 3, AR237: 3, AR183: 3, AR230: 3, AR291: 3, AR296: 3, AR231: 3, AR033: 3, AR293: 3, AR240: 3, AR285: 3, AR295: 3, AR185: 2, AR204: 2, AR225: 2, AR311: 2, AR286: 2, AR297: 2, AR181: 2, AR226: 2, AR227: 2, AR267: 2, AR289: 2, AR300: 2, AR299: 2, AR232: 2, AR268: 2, AR287: 2, AR205: 2, AR218: 2, AR174: 2, AR234: 2, AR294: 2, AR223: 2, AR179: 2, AR247: 2, AR233: 2, AR290: 2, AR308: 2, AR211: 2, AR283: 2, AR258: 1, AR172: 1, AR260: 1, AR288: 1, AR197: 1, AR219: 1, AR254: 1, AR257: 1, AR210: 1, AR255: 1, H0264: 3, S0134: 2, H0318: 2, H0271: 2, L0748: 2, L0749: 2, H0556: 1, H0463: 1, H0402: 1, H0587: 1, H0013: 1, H0234: 1, H0252: 1, H0616: 1, H0561: 1, L0518: 1, L0544: 1, S0126: 1, S3012: 1, H0444: 1, H0445: 1 and L0596: 1.</p>
579	HTOIZ02 HTOJA73	847904 797108	916 589	<p>AR313: 61, AR242: 45, AR164: 33, AR089: 30, AR165: 30, AR196: 29, AR192: 28, AR166: 28, AR173: 27, AR300: 24, AR039: 23, AR258: 22, AR096: 22, AR240: 21, AR218: 21, AR262: 20, AR312: 20, AR299: 20, AR247: 19, AR175: 19, AR229: 19, AR180: 19, AR174: 19, AR199: 18, AR185: 18, AR204: 18, AR161: 17, AR162: 17, AR179: 17, AR219: 17, AR163: 17, AR269: 17, AR257: 17, AR178: 17, AR270: 15, AR191: 15, AR181: 15, AR234: 15, AR293: 15, AR236: 15, AR182: 14, AR053: 14, AR198: 14, AR177: 14, AR316: 14, AR183: 13, AR233: 13, AR213: 13, AR200: 13, AR060: 13, AR226: 13, AR195: 12, AR268: 12, AR197: 12, AR294: 12, AR285: 12, AR260: 12, AR296: 12, AR212: 12, AR201: 11, AR193: 11, AR230: 11, AR238: 11, AR189: 11, AR243: 11, AR297: 11, AR203: 10, AR252: 10, AR231: 10, AR287: 10, AR176: 10, AR188: 10, AR261: 9, AR308: 9, AR205: 9, AR286: 9, AR254: 9, AR277: 9, AR264: 9, AR255: 9, AR237: 9, AR282: 8, AR033: 8, AR239: 8, AR271: 8, AR253: 8, AR290: 7, AR266: 7, AR250: 7, AR288: 7, AR263: 7, AR228: 7, AR267: 7, AR275: 7, AR245: 7, AR207: 7, AR283: 6, AR190: 6, AR246: 5, AR291: 5, AR227: 5, AR211: 5, AR256: 5, AR309: 5, AR104: 5, AR311: 4, AR210: 4, AR289: 4, AR274: 4, AR232: 4, AR223: 4, AR235: 4, AR214: 3, AR170: 3, AR055: 3, AR222: 3, AR216: 3, AR168: 3, AR061: 2, AR171: 2, AR217: 2, AR172: 2, AR224: 2, AR272: 2, AR215: 1, H0264: 1.</p>
580	HTOJK60	545067	590	<p>AR313: 29, AR173: 22, AR165: 22, AR164: 21, AR166: 21, AR161: 20, AR163: 19, AR262: 19, AR264: 19, AR089: 18, AR162: 18, AR218: 18, AR258: 17, AR240: 16, AR300: 16, AR247: 15, AR175: 15, AR096: 15, AR183: 14, AR299: 14, AR180: 14, AR178: 14, AR229: 14, AR196: 14, AR257: 14, AR174: 13, AR191: 13, AR236: 12, AR192: 12, AR181: 12, AR242: 12, AR296: 12, AR293: 12, AR207: 12, AR219: 11, AR179: 11, AR260: 11, AR213: 11, AR185: 11, AR182: 11, AR177: 11, AR234: 11, AR212: 11, AR312: 10, AR316: 10, AR261: 10, AR199: 10, AR297: 10, AR270: 10, AR053: 10, AR233: 10, AR269: 10, AR200: 10, AR226: 10, AR193: 10, AR238: 10, AR060: 9, AR285: 9, AR230: 9, AR203: 9, AR033: 9, AR263: 9, AR308: 9, AR235: 9, AR255: 9, AR286: 9, AR294: 9, AR237: 9, AR277: 9, AR287: 8, AR176: 8,</p>

581	HTPBW79	1317835	591	<p>AR039: 8, AR274: 8, AR282: 8, AR275: 8, AR204: 8, AR104: 8, AR198: 8, AR195: 8, AR295: 8, AR188: 8, AR189: 8, AR231: 8, AR228: 8, AR288: 8, AR223: 7, AR171: 7, AR253: 7, AR245: 7, AR168: 7, AR250: 7, AR291: 7, AR309: 7, AR268: 7, AR311: 6, AR210: 6, AR266: 6, AR239: 6, AR211: 6, AR289: 6, AR224: 6, AR197: 6, AR227: 6, AR256: 5, AR222: 5, AR243: 5, AR214: 5, AR267: 5, AR205: 5, AR055: 5, AR217: 5, AR216: 5, AR201: 5, AR271: 5, AR172: 5, AR232: 5, AR254: 5, AR272: 4, AR205: 4, AR190: 4, AR169: 4, AR246: 4, AR215: 4, AR061: 4, AR170: 3, AR283: 3, AR225: 3, AR252: 2, L0438: 6, H0519: 5, H0156: 4, L0747: 4, L0758: 4, L0763: 3, L0783: 3, L0777: 3, T0002: 2, H0341: 2, H0663: 2, H0402: 2, S0036: 2, H0551: 2, L0520: 2, L0646: 2, L0775: 2, L0776: 2, L0517: 2, H0547: 2, S0126: 2, L0756: 2, L0779: 2, L0755: 2, L0591: 2, H0713: 1, S0114: 1, S0116: 1, H0125: 1, S0358: 1, S0360: 1, S0476: 1, S0626: 1, H0549: 1, S0222: 1, H0599: 1, S0346: 1, H0421: 1, H0544: 1, H0050: 1, H0510: 1, S6028: 1, S0022: 1, H0328: 1, H0039: 1, L0055: 1, L0455: 1, H0124: 1, H0040: 1, H0634: 1, H0264: 1, T0042: 1, H0494: 1, H0560: 1, L0768: 1, L0364: 1, L0794: 1, L0766: 1, L0774: 1, L0657: 1, L0659: 1, L0666: 1, L0665: 1, S0052: 1, H0144: 1, H0709: 1, H0521: 1, S0013: 1, H0436: 1, L0740: 1, L0754: 1, L0749: 1, L0750: 1, L0752: 1, H0707: 1, S0434: 1, H0667: 1, H0423: 1, S0412: 1 and S0456: 1.</p> <p>AR035: 85, AR060: 59, AR039: 42, AR104: 41, AR299: 38, AR089: 38, AR283: 37, AR096: 31, AR185: 28, AR316: 27, AR282: 27, AR219: 20, AR218: 19, AR300: 19, AR240: 19, AR277: 18, AR215: 15, AR225: 15, AR313: 14, AR214: 11, AR217: 11, AR268: 11, AR165: 10, AR164: 10, AR166: 10, AR269: 9, AR216: 9, AR223: 9, AR183: 8, AR266: 8, AR182: 8, AR245: 7, AR221: 7, AR270: 7, AR176: 7, AR224: 6, AR061: 6, AR267: 6, AR168: 6, AR171: 6, AR177: 6, AR222: 6, AR272: 6, AR247: 6, AR173: 6, AR175: 6, AR290: 6, AR239: 5, AR172: 5, AR291: 5, AR191: 5, AR178: 5, AR246: 5, AR243: 5, AR188: 5, AR201: 5, AR237: 5, AR271: 5, AR211: 5, AR275: 5, AR295: 5, AR229: 5, AR289: 5, AR238: 5, AR181: 5, AR257: 5, AR161: 4, AR162: 4, AR180: 4, AR170: 4, AR200: 4, AR228: 4, AR163: 4, AR236: 4, AR233: 4, AR297: 4, AR285: 4, AR309: 4, AR231: 4, AR294: 4, AR204: 4, AR205: 4, AR242: 4, AR232: 4, AR296: 4, AR286: 4, AR179: 4, AR190: 4, AR252: 4, AR308: 4, AR234: 4, AR193: 4, AR197: 4, AR288: 4, AR293: 3, AR262: 3, AR189: 3, AR287: 3, AR199: 3, AR255: 3, AR174: 3, AR226: 3, AR212: 3, AR260: 3, AR298: 3, AR295: 3, AR312: 3, AR261: 3, AR033: 3, AR196: 3, AR254: 3, AR192: 3, AR258: 3, AR230: 3, AR227: 3, AR207: 3, AR203: 3, AR210: 3, AR256: 2, AR235: 2, AR274: 2, AR264: 2, AR053: 2, AR213: 1, AR169: 1, AR250: 1, L0747: 7, H0618: 6, H0253: 5, H0135: 4, S0046: 3, H0620: 3, S0344: 3, L0809: 3, H0556: 2, S0354: 2, S0358: 2, S0278: 2, H0370: 2, H0392: 2, H0046: 2, T0010: 2, H0083: 2, H0188: 2, H0039: 2, S0144: 2, L0438: 2, L3811: 2, H0670: 2, S0152: 2, H0521: 2, L0439: 2, L0758: 2, H0445: 2, L0581: 2, S0276: 2, H0713: 1, H0656: 1, H0176: 1, H0638: 1, S0418: 1, S0356: 1, S0360: 1, S0045: 1, S0476: 1, H0619: 1, H0550: 1, H0333: 1, H0427: 1, S0280: 1, H0318: 1, S0474: 1, H0052: 1, H0337: 1, H0041: 1, H0009: 1, H0572: 1, H0566: 1, H0123: 1, H0050: 1, H0024: 1, H0510: 1, S6028: 1, H0266: 1, H0428: 1, T0006: 1, H0213: 1, H0606: 1, H0124: 1, H0038: 1, H0087: 1, H0551: 1, H0059: 1, H0100: 1, H0494: 1, S0142: 1, S0426: 1, H0529: 1, L0769: 1, L3905: 1, L0373: 1, L0374: 1, L0804: 1, L0774: 1, L0659: 1, L0528: 1, L0666: 1, L3391: 1, L2262: 1, H0144: 1, S0126: 1, H0435: 1, H0659: 1, H0539: 1, H0187: 1, H0478: 1, S0027: 1, S0028: 1, L0743: 1, L0748: 1, L0752: 1, S0434: 1, L0596: 1, L0603: 1, H0422: 1, S0424: 1 and H0352: 1.</p>
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	HTPBW79	396459	918	
582	HTSEW17	460579	592	AR170: 7, AR161: 7, AR162: 7, AR163: 7, AR182: 7, AR225: 6, AR176: 6, AR282: 5, AR228: 5, AR223: 5, AR266: 5,

583	HITDB46	812763	593	<p>AR180: 5, AR224: 5, AR178: 5, AR269: 5, AR181: 5, AR261: 5, AR309: 5, AR233: 5, AR250: 5, AR191: 5, AR216: 4, AR257: 4, AR231: 4, AR267: 4, AR236: 4, AR268: 4, AR274: 4, AR229: 4, AR270: 4, AR214: 4, AR179: 4, AR239: 4, AR165: 4, AR288: 4, AR247: 4, AR263: 4, AR089: 4, AR255: 4, AR237: 4, AR061: 4, AR164: 4, AR287: 3, AR275: 3, AR240: 3, AR177: 3, AR096: 3, AR264: 3, AR174: 3, AR166: 3, AR183: 3, AR234: 3, AR293: 3, AR291: 3, AR295: 3, AR173: 3, AR300: 3, AR168: 3, AR200: 3, AR299: 3, AR190: 3, AR221: 3, AR196: 3, AR296: 3, AR290: 3, AR316: 3, AR294: 3, AR262: 3, AR175: 3, AR297: 3, AR185: 3, AR238: 3, AR313: 3, AR060: 3, AR230: 3, AR055: 3, AR039: 3, AR283: 3, AR286: 3, AR227: 3, AR260: 2, AR172: 2, AR285: 2, AR053: 2, AR308: 2, AR217: 2, AR311: 2, AR188: 2, AR277: 2, AR203: 2, AR226: 2, AR272: 2, AR232: 2, AR192: 2, AR222: 2, AR189: 2, AR201: 2, AR213: 2, AR312: 2, AR258: 2, AR193: 2, AR289: 2, AR171: 2, AR199: 2, AR256: 1, AR219: 1, AR12: 1, AR215: 1, AR211: 1, AR033: 1, AR258: 1, H0087: 1, S0002: 1, L0769: 1, L0789: 1, H0683: 1, H0670: 1, L0748: 1, L0749: 1, L0752: 1 and L0758: 1.</p> <p>AR197: 5, AR161: 4, AR181: 4, AR215: 4, AR163: 4, AR162: 4, AR272: 4, AR164: 3, AR282: 3, AR176: 3, AR264: 3, AR166: 3, AR180: 3, AR178: 3, AR311: 3, AR192: 3, AR263: 3, AR236: 3, AR174: 3, AR261: 3, AR195: 3, AR207: 3, AR288: 3, AR228: 3, AR222: 3, AR299: 3, AR193: 3, AR201: 3, AR309: 3, AR257: 3, AR212: 2, AR221: 2, AR205: 2, AR224: 2, AR053: 2, AR271: 2, AR275: 2, AR204: 2, AR239: 2, AR308: 2, AR291: 2, AR235: 2, AR214: 2, AR173: 2, AR190: 2, AR287: 2, AR177: 2, AR196: 2, AR216: 2, AR191: 2, AR225: 2, AR266: 2, AR169: 2, AR262: 2, AR245: 2, AR232: 2, AR289: 2, AR249: 2, AR269: 2, AR185: 2, AR268: 2, AR285: 2, AR229: 2, AR226: 2, AR238: 2, AR237: 2, AR183: 2, AR179: 2, AR247: 2, AR255: 2, AR188: 2, AR313: 2, AR312: 2, AR233: 2, AR295: 2, AR270: 2, AR189: 2, AR253: 2, AR175: 2, AR294: 2, AR060: 2, AR231: 2, AR089: 2, AR296: 2, AR246: 2, AR213: 2, AR297: 2, AR168: 2, AR234: 2, AR198: 2, AR223: 2, AR273: 2, AR267: 2, AR293: 1, AR039: 1, AR227: 1, AR274: 1, AR217: 1, AR277: 1, AR240: 1, AR203: 1, AR290: 1, AR316: 1, AR061: 1, AR286: 1, AR300: 1, AR242: 1, AR230: 1, AR200: 1, AR182: 1, AR171: 1, AR243: 1, AR310: 1, AR033: 1, AR096: 1, AR258: 1, S0408: 4, H0036: 3, S0444: 2, S0360: 1, H0038: 1 and H0040: 1.</p>
584	HITDB46 HTWCT03	909573 429618	919 594	<p>AR096: 36, AR218: 36, AR219: 35, AR039: 27, AR283: 26, AR089: 25, AR282: 24, AR316: 23, AR313: 19, AR299: 16, AR277: 14, AR104: 13, AR060: 13, AR055: 12, AR185: 9, AR240: 9, AR244: 7, AR300: 6, AR243: 6, AR225: 5, AR173: 5, AR269: 4, AR170: 4, AR310: 4, AR184: 3, AR183: 3, AR212: 3, AR254: 3, AR308: 3, AR224: 3, AR200: 2, AR265: 2, AR251: 2, AR264: 2, AR270: 2, AR315: 2, AR192: 2, AR293: 2, AR175: 2, AR263: 2, AR290: 2, AR312: 2, AR291: 2, AR196: 2, AR246: 1, AR262: 1, AR257: 1, AR292: 1, AR255: 1, AR215: 1, AR266: 1, AR295: 1, AR309: 1, AR286: 1, AR294: 1, AR284: 1, AR281: 1, AR171: 1, AR296: 1, L0439: 4, L2497: 1, L0766: 1, L0789: 1 and L0758: 1.</p> <p>AR214: 37, AR169: 30, AR222: 28, AR207: 27, AR223: 27, AR224: 26, AR263: 25, AR235: 25, AR217: 24, AR171: 22, AR168: 22, AR172: 22, AR170: 21, AR215: 21, AR225: 20, AR311: 19, AR309: 19, AR195: 19, AR216: 18, AR164: 18, AR162: 18, AR161: 17, AR192: 17, AR165: 17, AR213: 17, AR166: 17, AR198: 17, AR295: 16, AR308: 16, AR163: 16, AR053: 16, AR245: 16, AR089: 15, AR221: 15, AR261: 15, AR264: 15, AR177: 14, AR196: 14, AR240: 14, AR236: 14, AR210: 14, AR212: 14, AR288: 13, AR312: 13, AR271: 12, AR282: 12, AR277: 12, AR316: 12, AR252: 12, AR211: 11, AR033: 11, AR181: 11, AR246: 11, AR299: 11, AR285: 11, AR174: 10, AR242: 10, AR060: 10, AR286: 10, AR193: 10, AR275: 10, AR238: 10, AR229: 10, AR313: 10, AR201: 10, AR055: 9, AR291: 9, AR188: 9, AR232: 9,</p>
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	HWAD63	793875	932	
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616	HW/HHL34	805642	626	<p>H0031: 2, H0494: 2, L0776: 2, L0809: 2, H0696: 2, L0731: 2, H0556: 1, H0295: 1, H0177: 1, H0638: 1, H0370: 1, H0592: 1, H0587: 1, H0486: 1, L2539: 1, L0021: 1, H0081: 1, H0271: 1, H0181: 1, H0617: 1, H0380: 1, L0653: 1, L0659: 1, L0783: 1, L5622: 1, L0789: 1, L0791: 1, S0328: 1, L0752: 1, L0601: 1 and L3603: 1.</p> <p>AR266: 56, AR291: 51, AR292: 48, AR269: 38, AR294: 34, AR259: 34, AR270: 32, AR256: 30, AR183: 29, AR248: 27, AR258: 25, AR175: 25, AR104: 25, AR253: 24, AR289: 24, AR293: 23, AR218: 23, AR212: 23, AR219: 21, AR182: 21, AR249: 20, AR290: 20, AR295: 19, AR096: 18, AR316: 18, AR039: 17, AR285: 17, AR089: 16, AR309: 16, AR033: 13, AR298: 13, AR313: 13, AR055: 13, AR053: 13, AR251: 12, AR185: 12, AR282: 11, AR184: 10, AR299: 10, AR265: 10, AR286: 10, AR268: 10, AR283: 10, AR300: 9, AR296: 9, AR240: 9, AR238: 9, AR310: 9, AR267: 9, AR052: 8, AR263: 8, AR284: 8, AR213: 8, AR177: 8, AR234: 6, AR060: 6, AR179: 6, AR231: 5, AR280: 5, AR229: 4, AR244: 4, AR277: 4, AR247: 3, AR237: 3, AR226: 3, AR315: 3, AR232: 3, AR227: 2, AR233: 2, AR192: 2, AR061: 2, AR186: 1, AR204: 1, AR314: 1, AR206: 1, S0474: 28, H0046: 17, H0521: 16, L0754: 15, S0003: 14, L0770: 11, L0659: 11, L0748: 11, H0144: 10, L0766: 9, L0752: 9, L0809: 8, L0747: 8, L0471: 7, L0758: 7, H0747: 6, H0591: 6, L0775: 6, H0522: 6, S0028: 6, L0731: 6, H0543: 6, H0423: 6, H0580: 5, H0599: 5, H0581: 5, H0327: 5, H0373: 5, S0214: 5, L0666: 5, L0753: 5, H0638: 4, L0005: 4, S0354: 4, S0376: 4, S0360: 4, S0222: 4, H0013: 4, H0024: 4, H0560: 4, L0805: 4, L0776: 4, L0655: 4, H0547: 4, L0744: 4, L0749: 4, L0777: 4, S0436: 4, L0588: 4, L0599: 4, S0192: 4, L3814: 3, H0735: 3, H0733: 3, S0278: 3, H0251: 3, L0157: 3, S0051: 3, H0375: 3, T0006: 3, H0553: 3, H0674: 3, L0662: 3, L0664: 3, L0665: 3, H0435: 3, H0539: 3, S0406: 3, L0740: 3, H0542: 3, H0624: 2, H0170: 2, H0713: 2, S0134: 2, H0650: 2, S0212: 2, H0664: 2, L3658: 2, S0418: 2, S0420: 2, S0358: 2, H0729: 2, H0741: 2, H0632: 2, L0021: 2, H0575: 2, H0036: 2, S0010: 2, H0050: 2, H0051: 2, H0266: 2, H0622: 2, L0483: 2, H0644: 2, H0165: 2, S0036: 2, H0090: 2, H0038: 2, H0100: 2, S0440: 2, H0641: 2, L3815: 2, S0422: 2, L0769: 2, L0803: 2, L0545: 2, H0520: 2, H0659: 2, H0658: 2, S0328: 2, L0602: 2, H0436: 2, L0750: 2, L0779: 2, L0757: 2, L0759: 2, S0434: 2, L0596: 2, L0587: 2, L0591: 2, L0594: 2, H0667: 2, S0194: 2, H0422: 2, L3813: 2, S0342: 1, H0716: 1, H0740: 1, S0114: 1, L0002: 1, H0656: 1, L0760: 1, L0778: 1, H0341: 1, H0346: 1, H0661: 1, L3659: 1, H0306: 1, H0402: 1, H0459: 1, S0348: 1, S0356: 1, S0442: 1, L3646: 1, L3649: 1, H0722: 1, H0728: 1, H0734: 1, H0208: 1, S0046: 1, S0476: 1, H0393: 1, L0717: 1, H0411: 1, S6022: 1, H0098: 1, H0706: 1, S0346: 1, H0310: 1, H0052: 1, H0587: 1, H0362: 1, H0331: 1, H0574: 1, T0112: 1, H0427: 1, H0097: 1, H0098: 1, H0103: 1, H0123: 1, H0023: 1, S0050: 1, H0014: 1, H0015: 1, S0362: 1, L0163: 1, S6028: 1, H0271: 1, H0009: 1, H0570: 1, H0103: 1, H0123: 1, H0023: 1, S0050: 1, H0014: 1, H0015: 1, S0362: 1, L0163: 1, S6028: 1, H0271: 1, H0188: 1, S0250: 1, H0252: 1, H0328: 1, H0615: 1, H0039: 1, H0031: 1, H0032: 1, H0673: 1, H0169: 1, S0364: 1, H0376: 1, H0616: 1, H0264: 1, H0059: 1, L0564: 1, T0042: 1, H0494: 1, L0475: 1, H0625: 1, S0464: 1, S0438: 1, H0646: 1, H0649: 1, S0002: 1, H0695: 1, L0369: 1, L0371: 1, L0772: 1, L0764: 1, L0771: 1, L0521: 1, L0768: 1, L0364: 1, L0804: 1, L0774: 1, L0651: 1, L0806: 1, L0653: 1, L0606: 1, L0657: 1, L0656: 1, L0517: 1, L0384: 1, L0544: 1, L0788: 1, L0791: 1, L0792: 1, L0663: 1, S0053: 1, S0374: 1, S0148: 1, H0519: 1, S0126: 1, S0330: 1, S0380: 1, H0710: 1, H0518: 1, H0525: 1, H0696: 1, S0044: 1, S0390: 1, S3014: 1, S0206: 1, L0786: 1, L0780: 1, L0755: 1, L0686: 1, H0665: 1, S0196: 1 and H0506: 1.</p>
	HW/HHL34	801943	943	
	HW/HHL34	341560	944	
617	HW/LEV32	1032602	627	<p>AR039: 14, AR313: 12, AR096: 8, AR089: 7, AR299: 7, AR185: 5, AR277: 5, AR282: 5, AR316: 4, AR300: 4, AR104: 4, AR198: 4, AR182: 3, AR060: 3, AR240: 3, AR246: 3, AR178: 3, AR215: 3, AR225: 3, AR263: 2, AR216: 2, AR218: 2,</p>



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620	HYAAJ71	826754	630	<p>AR104: 1, AR096: 1, AR204: 1, AR294: 1, AR258: 1, AR246: 1, AR300: 1, AR250: 1, AR199: 1, AR033: 1, L0439: 4, L0748: 2, H0351: 1, S0364: 1, L0768: 1, L0650: 1, L0375: 1, L0747: 1 and H0352: 1.</p> <p>AR313: 41, AR173: 25, AR163: 25, AR166: 25, AR196: 23, AR161: 23, AR162: 23, AR165: 22, AR164: 21, AR089: 21, AR312: 20, AR218: 19, AR264: 19, AR300: 19, AR096: 19, AR258: 18, AR274: 18, AR174: 18, AR175: 18, AR191: 17, AR185: 17, AR262: 17, AR308: 17, AR257: 16, AR275: 16, AR229: 16, AR247: 16, AR309: 16, AR199: 16, AR179: 15, AR189: 15, AR183: 15, AR240: 15, AR270: 15, AR060: 14, AR269: 14, AR293: 14, AR295: 13, AR286: 13, AR234: 13, AR268: 13, AR181: 13, AR311: 13, AR178: 13, AR299: 13, AR180: 13, AR033: 13, AR192: 13, AR177: 13, AR219: 13, AR282: 13, AR316: 12, AR263: 12, AR233: 12, AR193: 12, AR238: 12, AR053: 12, AR226: 12, AR296: 12, AR104: 12, AR285: 11, AR182: 11, AR242: 11, AR261: 11, AR212: 11, AR297: 11, AR188: 11, AR190: 11, AR203: 11, AR260: 10, AR236: 10, AR294: 10, AR287: 10, AR288: 10, AR176: 10, AR200: 10, AR291: 10, AR255: 10, AR213: 9, AR256: 9, AR237: 9, AR252: 9, AR290: 9, AR271: 9, AR198: 9, AR195: 9, AR039: 9, AR230: 9, AR211: 9, AR266: 8, AR231: 8, AR289: 8, AR210: 8, AR245: 8, AR272: 8, AR201: 8, AR197: 8, AR277: 7, AR239: 7, AR227: 7, AR207: 7, AR283: 7, AR253: 7, AR267: 7, AR228: 7, AR235: 7, AR254: 7, AR204: 7, AR232: 6, AR243: 6, AR205: 6, AR250: 6, AR061: 5, AR055: 5, AR246: 5, AR172: 4, AR168: 4, AR222: 3, AR170: 3, AR216: 3, AR217: 3, AR171: 2, AR225: 2, AR215: 1, AR224: 1, AR221: 1, H0583: 1, H0485: 1, H0581: 1, S0053: 1 and H0423: 1.</p>
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**Table 1C** summarizes additional polynucleotides encompassed by the invention (including cDNA clones related to the sequences (Clone ID:), contig sequences (contig identifier (Contig ID:) contig nucleotide sequence identifiers (SEQ ID NO:X)), and genomic sequences (SEQ ID NO:B). The first column provides a unique clone identifier, "Clone ID:", for a cDNA clone related to each contig sequence. The second column provides the sequence identifier, "SEQ ID NO:X", for each contig sequence. The third column provides a unique contig identifier, "Contig ID:" for each contig sequence. The fourth column, provides a BAC identifier "BAC ID NO:A" for the BAC clone referenced in the corresponding row of the table. The fifth column provides the nucleotide sequence identifier, "SEQ ID NO:B" for a fragment of the BAC clone identified in column four of the corresponding row of the table. The sixth column, "Exon From-To", provides the location (i.e., nucleotide position numbers) within the polynucleotide sequence of SEQ ID NO:B which delineate certain polynucleotides of the invention that are also exemplary members of polynucleotide sequences that encode polypeptides of the invention (e.g., polypeptides containing amino acid sequences encoded by the polynucleotide sequences delineated in column six, and fragments and variants thereof).

**Table 1C**

cDNA Clone ID	SEQ ID NO:X	CONTIG ID:	BAC ID: A	SEQ ID NO:B	EXON From-To
HAGAN21	21	1026956	AC011967	1885	1-839
HAGAN21	21	1026956	AC074370	1886	1-839
HAGAN21	21	1026956	AL355151	1887	1-837
HAGAN21	21	1026956	AL121796	1888	1-836
HAGAN21	21	1026956	AC011967	1889	1-367 372-1167 1180-1791 3777-4078 4113-4269
HAGAN21	21	1026956	AC074370	1890	1-366 373-1167 1180-1793 3779-4081 4117-4273
HAGAN21	21	1026956	AL355151	1891	1-364 373-1166 1179-1790 3780-4082
HAGAN21	21	1026956	AL121796	1892	1-367 374-1165 1178-1791 3767-4069 4105-4262
HAIBP89	31	727543	AC005214	1893	1-228 817-3471
HAIBP89	31	727543	AC005214	1894	1-539

HBCPB32	56	1352403	AC024191	1895	1-643 1421-1636 4917-5536
HBCQL32	57	1134954	AC069250	1896	1-461 504-1011 1964-2424 2747-2859 3098-3251 4239-6717
HBCQL32	57	1134954	AC069250	1897	1-418
HBINS58	62	1352386	AL096774	1898	1-1023 2010-2239 2581-2962 3153-3223 3324-3493 3973-4126
HBINS58	62	1352386	AL096774	1899	1-341
HBINS58	62	1352386	AL096774	1900	1-142
HBMCI50	69	668268	AL139132	1901	1-890
HBMCI50	69	668268	AL359179	1902	1-891
HBMCI50	69	668268	AL139132	1903	1-155
HBMCI50	69	668268	AL359179	1904	1-155
HBOEG11	71	1300752	AL139352	1905	1-253 438-539 2336-2801 4986-5209 5967-6439 9014-9452 9829-10084 10404-10503 12165-13255
HBOEG11	71	1300752	AL139352	1906	1-559
HCEFB80	79	1143407	AL022327	1907	1-2271 3506-3658 4643-4810 9039-9164 9382-9509 10587-10720 11135-11195 11265-11716 14644-15466 17451-17526 18012-18114 20530-20632 20957-21009 23696-23785 25338-25575 25969-26166
HCEWE17	83	941941	AL139130	1908	1-170 463-598 623-1346 1404-1523 2059-2159 2350-2616

					3068-3254 3428-3878
HCOOS80	96	1134974	AC003688	1909	1-718 1054-1158 1660-1980 4003-4073 4364-4516 4646-4749 4852-4995 5121-5213 5354-5424 5526-5669 5759-5832 5850-6176 6756-6829 7023-7175 7259-7398 7531-7711 8134-8381 8463-13585 13691-14323 14437-14918
HCOOS80	96	1134974	AC026954	1910	1-138 273-453 876-1123 1205-4456
HCOOS80	96	1134974	AC003688	1911	1-125 203-480 1463-1647 2048-2077 2229-2323 2725-3784 3867-4682
HCWGU37	103	1042325	AC007459	1912	1-242
HCWGU37	103	1042325	AC022435	1913	1-218 5587-5754
HCWGU37	103	1042325	AC022051	1914	1-294
HCWGU37	103	1042325	AC023672	1915	1-196
HCWGU37	103	1042325	AC011101	1916	1-100
HCWGU37	103	1042325	AC034243	1917	1-312 2334-2364
HCWGU37	103	1042325	AC010454	1918	1-218 5588-5755
HCWGU37	103	1042325	AC026144	1919	1-183
HCWGU37	103	1042325	AC009691	1920	1-292
HCWGU37	103	1042325	AL354696	1921	1-181
HCWGU37	103	1042325	AC073219	1922	1-123
HCWGU37	103	1042325	AC027414	1923	1-270
HCWGU37	103	1042325	AC010454	1924	1-303
HDPWN93	140	992925	AC004590	1925	1-276 489-591 866-988 1106-1281 1323-1444

					1632-1799 1866-2016 2109-2313 2634-3205 3360-3472 3528-3744 3820-5006 6580-6919 7076-7276 8057-8153 8318-8680
HDPWN93	140	992925	AC021491	1926	1-275 488-590 865-987 1105-1280 1322-1443 1631-1798 1865-2015 2108-2312 2633-3204 3359-3471 3527-3743 3819-5005 6579-6918 7075-7275 8054-8150 8315-8677
HDPWN93	140	992925	AC004590	1927	1-303 727-1252 5721-5846
HDPWN93	140	992925	AC021491	1928	1-303 727-1253 5723-5848
HDTEK44	146	1025421	AC022100	1929	1-2932
HDTEK44	146	1025421	AC022100	1930	1-353
HDTFE17	148	1043391	AF196972	1931	1-74 391-524 1481-1536 1623-1699 2092-2448 2537-2611 3085-3179 3315-3395 6429-6514 6997-7407 7611-7693 8316-8774 9534-9680 9770-9875 10373-10876
HDTFE17	148	1043391	AF196972	1932	1-742
HDTMK50	151	1011485	AL354768	1933	1-1340
HDTMK50	151	1011485	AC012318	1934	1-147
HDTMK50	151	1011485	AL354768	1935	1-590

HE8QV67	162	1050076	AL133410	1936	1-765 4403-4496 4696-4813 5112-5584 5780-5830 5850-7766 7774-8284 8479-8902 8986-9110 9305-9481 9658-9944 9998-10106 10202-12718 12797-12886 12974-13063 13259-14645 14680-14941 15625-15714 15825-15895 15965-16114 16204-16772
HE8QV67	162	1050076	AL133410	1937	1-85 1082-1951 2761-3118
HE8QV67	162	1050076	AL133410	1938	1-26 28-267 828-3952 4173-4837 4930-6955 7105-7230 7451-7655 7842-7947 8245-8329 8599-8756 8855-8940 9219-9356 9728-9861 10190-10231
HEBBN36	172	486120	AC005180	1939	1-341 704-1559 1704-3089 3146-4166 4768-4871 5384-5485 5535-6182 6595-7328
HEBBN36	172	486120	AC002557	1940	1-1387
HEBBN36	172	486120	AC002557	1941	1-856
HEBBN36	172	486120	AC002557	1942	1-971
HETLM70	193	1177512	AC012314	1943	1-43 861-1031 1576-1743 1924-2132 2203-2432

					2473-2905 3177-3360 3651-4332 4422-4583 4830-4995 5086-5365
HETLM70	193	1177512	AC009968	1944	1-43 857-1027 1570-1737 1918-2126 2197-2426 2467-2899 3171-3354 3644-4326 4416-4577 4824-4989 5080-5360
HETLM70	193	1177512	AC012314	1945	1-181 1281-1463 2719-2983 3158-3411 3804-6347 6745-6879 7118-7319 7420-7521 7859-8305 8552-8602 9988-10334 10415-10778 11003-11127 11210-11303 11334-11832 13093-13145 13703-13837 13918-14152 15415-15511 15613-15742 15998-16087 16231-16307 16447-17211 18520-18796 21777-22001
HETLM70	193	1177512	AC009968	1946	1-180 1275-1457 2712-2976 3150-3403 3796-6332 6730-6864 7103-7303 7404-7505 7843-8289 8536-8586 9970-10312 10393-10756 10981-11105



					11188-11805 13068-13120 13678-13812 13905-13994
HFIIZ70	202	1043350	AC005005	1947	1-368 1579-2971
HFIIZ70	202	1043350	AC005005	1948	1-484 517-1142 2842-3176 3376-3493 3575-3740 3873-4227 4728-4935 5074-5351 5446-5564 5772-5960 7287-7627 7721-8097 8218-9325 12098-12161 12780-13266 13482-13666 13748-13817 14445-14519 14595-14928 15658-15754 15848-15923 16016-16112 16512-16660 21313-21448 21710-21870 21899-22470 22634-22787 23169-23307
HFVGE32	215	854545	AL160269	1949	1-1122
HFVGE32	215	854545	AL138754	1950	1-1120
HHBCS39	232	1003028	AL390960	1951	1-2979
HHBCS39	232	1003028	AL358992	1952	1-2983
HHBCS39	232	1003028	AL358992	1953	1-207
HHEPD24	238	498227	AC025937	1954	1-216
HHGCM76	250	662329	AC003665	1955	1-70 304-609 900-1090 1240-1835 2272-2490 2581-3598
HHGCM76	250	662329	AC003665	1956	1-580 851-995 1224-1296 1314-1663 1930-1975 2724-2905 2968-3098 3283-3328

					5121-5230 5331-5689
HJACG30	260	895505	AC018512	1957	1-776
HJACG30	260	895505	AC022305	1958	1-878
HJACG30	260	895505	AC002518	1959	1-150
HKACM93	277	1352383	AL158848	1960	1-431 4227-4418 6907-7028 12393-12788 13026-13171 14505-14634 14659-14701 15118-15405 16371-16568 17704-17888 18408-18580 18868-19021 19843-20023 21731-21911 23724-25211
HKACM93	277	1352383	AL158848	1961	1-2833 2990-3408 3932-5958 5960-6045 6428-6501
HKGAT94	283	762811	AC025388	1962	1-1040 1047-2356 2415-3968
HKGAT94	283	762811	AL109945	1963	1-1040 1047-2356 2415-3968
HKGAT94	283	762811	AC022307	1964	1-1040 1047-2356 2415-3968
HKGAT94	283	762811	AC025388	1965	1-506
HKGAT94	283	762811	AL109945	1966	1-506
HKGAT94	283	762811	AL109945	1967	1-456
HKGAT94	283	762811	AC022307	1968	1-479
HKGAT94	283	762811	AC022307	1969	1-506
HLHFR58	305	919888	AC020749	1970	1-1006
HLHFR58	305	919888	AC020749	1971	1-336
HNGBC07	372	1037631	AL022339	1972	1-1583
HNGIH43	380	410179	AC018980	1973	1-83 3147-4045 4401-4443
HNGIH43	380	410179	AC018977	1974	1-604
HNGIH43	380	410179	AL356243	1975	1-83 3146-4044 4400-4442
HNGIH43	380	410179	AC018980	1976	1-872
HNTSY18	409	1041383	AC004877	1977	1-175 342-474 573-1883 2536-2632

					2831-2894 2999-3231 5032-5164 6664-6820 7288-7881
HNTSY18	409	1041383	AC004877	1978	1-42 1197-1333 1575-1698 1936-1984 2246-2304
HOEDE28	424	1036480	AC058820	1979	1-150 412-580 1115-1724 1821-2461 2640-4410
HOEDE28	424	1036480	AC058820	1980	1-533 676-947 959-1251
HOHBY44	441	873264	AC074201	1981	1-5280 5527-5989 7392-7421
HOHBY44	441	873264	AC074201	1982	1-298
HPDWP28	454	1094609	AP000067	1983	1-818 981-1337 1583-1823 2236-2371
HPDWP28	454	1094609	AP000067	1984	1-129
HPICB53	461	1042309	AC002351	1985	1-82 959-2236
HPICB53	461	1042309	AC020997	1986	1-1329
HPICB53	461	1042309	AC002351	1987	1-115
HPICB53	461	1042309	AC020997	1988	1-201 1064-1126 1665-2153 2308-3502
HPJBK12	462	1011467	AC022033	1989	1-2649
HPJBK12	462	1011467	AC013541	1990	1-2649
HPJBK12	462	1011467	AC022033	1991	1-190
HPJBK12	462	1011467	AC013541	1992	1-190
HPJCL22	463	1146674	AC037447	1993	1-102 373-826 995-1315 1450-1567 2189-2515 2599-2778 3138-4132 4537-4681 4864-4998 5144-5324 5394-6211 6816-6941 7472-7647 7791-8885 9056-9368

					9506-9733 9799-10100 10277-10988 11213-11751 11783-11838 11875-12474 12592-13077
HPJCL22	463	1146674	AC022400	1994	1-102 373-826 995-1315 1450-1567 2189-2515 2599-2778 3138-4132 4537-4681 4864-4998 5144-5324 5394-6211 6816-6941 7472-7647 7791-8885 9056-9368 9506-9733 9799-10100 10277-10988 11213-11751 11783-11837 11874-12473 12591-13076
HPJCL22	463	1146674	AC037447	1995	1-207
HPJCL22	463	1146674	AC037447	1996	1-2124
HPJCL22	463	1146674	AC022400	1997	1-207
HPJCL22	463	1146674	AC022400	1998	1-2124 2470-2567 2865-2971
HPJEX20	465	1352420	AL080251	1999	1-1821
HPJEX20	465	1352420	AL139283	2000	1-1821
HPJEX20	465	1352420	AL080251	2001	1-313
HPJEX20	465	1352420	AL139283	2002	1-313
HPWAY46	475	1001560	AC019036	2003	1-1399
HPWAY46	475	1001560	AC067828	2004	1-1399
HPWAY46	475	1001560	AC019036	2005	1-788
HPWAY46	475	1001560	AC067828	2006	1-788
HSAUK57	487	772554	AC008860	2007	1-1344
HSAUK57	487	772554	AC025444	2008	1-1344
HSAUK57	487	772554	AC008860	2009	1-340
HSAUK57	487	772554	AC025444	2010	1-340
HSAWD74	491	460527	AC004951	2011	1-1651 1740-2593
HSAWD74	491	460527	AC004951	2012	1-149
HSAWD74	491	460527	AC004951	2013	1-5057 5082-8353 8404-8996
HSDJL42	503	1036471	AC008676	2014	1-56

					571-2959
HSLJG37	519	1016920	AC022608	2015	1-2406
HSLJG37	519	1016920	AC022608	2016	1-53 430-718
HSLJG37	519	1016920	AC022608	2017	1-351
HSODE04	520	906081	Z99289	2018	1-1365
HSXEQ06	535	1016924	AL390254	2019	1-159 3226-4594 5783-7254 7340-7720 8172-13712
HSXEQ06	535	1016924	AL356017	2020	1-73 505-680 1625-2403 5814-5972 9035-10403 11592-13063 13149-13529 13981-19521
HSXEQ06	535	1016924	AL390254	2021	1-126
HSXEQ06	535	1016924	AL356017	2022	1-126
HSXEQ06	535	1016924	AL356017	2023	1-42 674-828 3271-3406 4251-4326 5040-5180 7884-8230 8404-8621 8735-8892 10277-10417
HSYAZ50	539	1027673	AC007378	2024	1-2471
HSYAZ50	539	1027673	AC073041	2025	1-2471
HSYAZ50	539	1027673	AC007378	2026	1-467
HSYAZ50	539	1027673	AC073041	2027	1-467
HTHBG43	565	919911	AL139257	2028	1-36 130-201 330-753 1823-2214 2331-2440 2728-2834 2920-3028 3370-3514 4153-5236 5877-6744 6813-7124 8441-9280 9527-9953 10394-10536 10945-11362 11763-11843 12653-12953 13970-14183 14223-14726 15929-16299

					16328-16751 17791-18093 18095-18712 18754-24628 24879-25426
HTHBG43	565	919911	AL139257	2029	1-286
HTHCA18	566	908144	AP002439	2030	1-1800
HTHCA18	566	908144	AP002505	2031	1-1776
HTHCA18	566	908144	AP002439	2032	1-110
HTHCA18	566	908144	AP002505	2033	1-110
HTJML75	570	1040047	AC025036	2034	1-148
HTJML75	570	1040047	AC022232	2035	1-152
HTJML75	570	1040047	AC022231	2036	1-151
HTJML75	570	1040047	AC010694	2037	1-202
HTJML75	570	1040047	AC027300	2038	1-158
HTJML75	570	1040047	AC011953	2039	1-126
HTJML75	570	1040047	AC010694	2040	1-77
HTLIV19	579	1046341	AC055750	2041	1-964
HTLIV19	579	1046341	AC027463	2042	1-964
HTLIV19	579	1046341	AC055750	2043	1-236
HTLIV19	579	1046341	AC027463	2044	1-236
HTOIZ02	588	826312	AC023146	2045	1-2101 3106-3722
HTOIZ02	588	826312	AC023146	2046	1-278
HVARW53	609	1194812	AC011298	2047	1-648 1184-3022 3943-4047 5961-6504
HVARW53	609	1194812	AC011298	2048	1-397

**Tables 1D:** The polynucleotides or polypeptides, or agonists or antagonists of the present invention can be used in assays to test for one or more biological activities. If these polynucleotides and polypeptides do exhibit activity in a particular assay, it is likely that these molecules may be involved in the diseases associated with the biological activity. Thus, the polynucleotides or polypeptides, or agonists or antagonists could be used to treat the associated disease.

The present invention encompasses methods of detecting, preventing, diagnosing, prognosticating, treating, and/or ameliorating a disease or disorder. In preferred embodiments, the present invention encompasses a method of treating cancer and other hyperproliferative disorders comprising administering to a patient in which such detection, treatment, prevention, and/or amelioration is desired a protein, nucleic acid, or antibody of the invention (or fragment or variant thereof) in an amount effective to detect, prevent, diagnose, prognosticate, treat, and/or ameliorate the cancer and other hyperproliferative disorders.

In another embodiment, the present invention also encompasses methods of detecting, preventing, diagnosing, prognosticating, treating, and/or ameliorating cancer and other

hyperproliferative disorders; comprising administering to a patient combinations of the proteins, nucleic acids, or antibodies of the invention (or fragments or variants thereof), sharing similar indications as shown in the corresponding rows in Column 3 of Table 1D.

**Table 1D** provides information related to biological activities for polynucleotides and polypeptides of the invention (including antibodies, agonists, and/or antagonists thereof). Table 1D also provides information related to assays which may be used to test polynucleotides and polypeptides of the invention (including antibodies, agonists, and/or antagonists thereof) for the corresponding biological activities. The first column ("Gene No.") provides the gene number in the application for each clone identifier. The second column ("cDNA Clone ID:") provides the unique clone identifier for each clone as previously described and indicated in Table 1A through Table 1D. The third column ("AA SEQ ID NO:Y") indicates the Sequence Listing SEQ ID Number for polypeptide sequences encoded by the corresponding cDNA clones (also as indicated in Tables 1A, Table 1B, and Table 2). The fourth column ("Biological Activity") indicates a biological activity corresponding to the indicated polypeptides (or polynucleotides encoding said polypeptides). The fifth column ("Exemplary Activity Assay") further describes the corresponding biological activity and also provides information pertaining to the various types of assays which may be performed to test, demonstrate, or quantify the corresponding biological activity.

Table 1D describes the use of, inter alia, FMAT technology for testing or demonstrating various biological activities. Fluorometric microvolume assay technology (FMAT) is a fluorescence-based system which provides a means to perform nonradioactive cell- and bead-based assays to detect activation of cell signal transduction pathways. This technology was designed specifically for ligand binding and immunological assays. Using this technology, fluorescent cells or beads at the bottom of the well are detected as localized areas of concentrated fluorescence using a data processing system. Unbound fluorophore comprising the background signal is ignored, allowing for a wide variety of homogeneous assays. FMAT technology may be used for peptide ligand binding assays, immunofluorescence, apoptosis, cytotoxicity, and bead-based immunocapture assays. See, Miraglia S et. al., "Homogeneous cell and bead based assays for highthroughput screening using fluorometric microvolume assay technology," *Journal of Biomolecular Screening*; 4:193-204 (1999). In particular, FMAT technology may be used to test, confirm, and/or identify the ability of polypeptides (including polypeptide fragments and variants) to activate signal transduction pathways. For example, FMAT technology may be used to test, confirm, and/or identify the ability of polypeptides to upregulate production of immunomodulatory proteins (such as, for example, interleukins, GM-CSF, Rantes, and Tumor Necrosis factors, as well as other cellular regulators (e.g. insulin)).

Table 1D also describes the use of kinase assays for testing, demonstrating, or quantifying biological activity. In this regard, the phosphorylation and de-phosphorylation of specific amino acid residues (e.g. Tyrosine, Serine, Threonine) on cell-signal transduction proteins provides a fast, reversible means for activation and de-activation of cellular signal transduction pathways. Moreover, cell signal transduction via phosphorylation/de-phosphorylation is crucial to the regulation of a wide variety of cellular processes (e.g. proliferation, differentiation, migration, apoptosis, etc.). Accordingly, kinase assays provide a powerful tool useful for testing, confirming, and/or identifying polypeptides (including polypeptide fragments and variants) that mediate cell signal transduction events via protein phosphorylation. See e.g., Forrer, P., Tamaskovic R., and Jaussi, R. "Enzyme-Linked Immunosorbent Assay for Measurement of JNK, ERK, and p38 Kinase Activities" *Biol. Chem.* 379(8-9): 1101-1110 (1998).



Table 1D

Gene No.	cDNA Clone ID	AA SEQ ID NO: Y	Biological Activity	Exemplary Activity Assay
1	H2CBG48	948	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.
1	H2CBG48	948	Activation of transcription through API response element in immune cells (such as T-cells).	Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al.,

1	H2CBG48	948	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line, which is an IL-2 dependent suspension culture cell line that also responds to IL-4.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line, which is a suspension culture of IL-2 dependent T cells that also respond to IL-4.</p>
2	H2MAC30	949	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used</p>

2	H2MAC30	949	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" <i>Clin Exp Immunol</i>; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" <i>J Exp Med</i>; Feb 2;187(3):415-25 (1998); <i>J Allergy Clin Immunol</i> 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" <i>J Allergy Clin Immunol</i>; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p>
3	H6EAB28	950	Production of TNF alpha by dendritic cells	<p>TNF<math>\alpha</math> FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in</p>

3	H6EAB28	950	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFa), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its</p>
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4	H6EDF66	951	<p>entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the API response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1988); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Rellahan et al., <i>J Biol Chem</i> 272(49):30806-30811 (1997); Chang et al., <i>Mol Cell Biol</i> 18(9):4986-4993 (1998); and Fraser et al., <i>Eur J Immunol</i> 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p>
4	H6EDF66	951	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" <i>Br Med Bull</i>; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" <i>Pharmacology &amp; Therapeutics</i>; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that</p>

5	HABAG37	952	Activation of transcription through GAS response element in immune cells (such as T-cells).	secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood. Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOL.T4 cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).
5	HABAG37	952	Activation of transcription through NFKB response element in immune cells (such as T-cells).	Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOL.T4, that may be used according to these assays are publicly available (e.g., through the ATCC).
6	HACBD91	953	Activation of	Assays for the activation of transcription through the cAMP response element are well-

6	HACBD91	953	<p>transcription through cAMP response element (CRE) in pre-adipocytes.</p>	<p>known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
			<p>Activation of transcription through cAMP response element in immune cells (such as T-cells).</p>	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are</p>

6	HACBD91	953	Production of IL-6	<p>publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MEEd identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test</p>
6	HACBD91	953	Regulation of transcription of Malic Enzyme in adipocytes	



6	HACBD91	953	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeper, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Jippenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test</p>
6	HACBD91	953	Activation of transcription through CD28 response element in immune cells (such as T-cells).	

6	HACBD91	953	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Jacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 272(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992);</p>
6	HACBD91	953	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Jacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 272(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992);</p>

6	HACBD91	953	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
6	HACBD91	953	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346</p>

6	HACBD91	953	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>(1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
6	HACBD91	953	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-</p>

6	HACBD91	953	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
7	HACCI17	954	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference</p>

7	HACCI17	954	Production of IL-8 by immune cells (such as the human EOL-1 eosinophil cells)	<p>in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assay that measures the production of the chemokine interleukin-8 (IL-8) from immune cells (such as the EOL-1 human eosinophil cell line) are well known in the art (for example, measurement of IL-8 production by FMAIT) and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. IL8 is a strong immunomodulator and may have a potential proinflammatory role in immunological diseases and disorders (such as allergy and asthma).</p>
7	HACCI17	954	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line</p>

7	HACC117	954	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
7	HACC117	954	Production of IL-5	<p>IL-5 FMA T. Assays for immunomodulatory proteins secreted by TH2 cells, mast cells, basophils, and eosinophils that stimulate eosinophil function and B cell Ig production and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cell function, modulate B cell Ig production, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-5, and the stimulation of eosinophil function and B cell Ig production. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including</p>

7	HACCI17	954	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUEVC))	<p>antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ohshima et al., Blood 92(9):3338-3345 (1998); Jung et al., Eur J Immunol 25(8):2413-2416 (1995); Mori et al., J Allergy Clin Immunol 106(1 Pt 2):558-564 (2000); and Koning et al., Cytokine 9(6):427-436 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUEVC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p> <p>Assays measuring production of IL-8 are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8. For example, FMAT may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8 from endothelial cells (such as human umbilical vein endothelial cells (HUEVC)). HUVECs are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and</p>
7	HACCI17	954	Production of IL-8 by endothelial cells (such as Human Umbilical Cord Endothelial Cells).	



7	HACC117	954	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>immune cell extravasation. Endothelial cells play a pivotal role in the initiation and perpetuation of inflammation and secretion of IL-8 may play an important role in recruitment and activation of immune cells such as neutrophils, macrophages, and lymphocytes.</p> <p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVEC), and are available from commercial sources. The expression of ICAM (CD54), a integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p>
8	HADA089	955	Activation of transcription through API response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line,</p>

9	HAGA185	956	Production of IFN $\gamma$ using Natural Killer cells	<p>which is an IL-2 dependent suspension culture cell line that also responds to IL-4.</p> <p>IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2; promotes IgG2a and inhibits IgE; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity.</p> <p>Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., <i>J Clin Lab Anal</i> 8(5):225-233 (1995); Billiau et al., <i>Ann NY Acad Sci</i> 856:22-32 (1998); Boehm et al., <i>Annu Rev Immunol</i> 15:749-795 (1997), and <i>Rheumatology (Oxford)</i> 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Natural Killer (NK) cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do not bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p>
9	HAGA185	956	Production of GM-CSF	<p>GM-CSF FMAT. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of</p>

10	HAGAM64	957	Regulation of apoptosis of immune cells (such as mast cells).	<p>the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do not bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996), the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell</p>
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11	HAGAN21	958	Activation of transcription through GAS response element in immune cells (such as T-cells).	line. Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.
12	HAGBZ81	959	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
14	HAGDI35	961	Activation of transcription through NFKB response	Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the

14	HAGDI35	961	<p>element in immune cells (such as EOL1 cells).</p> <p>invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFkB responsive element in EOL-1 cells) may link the NFkB element to a reporter gene and binds to the NFkB transcription factor, which is upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available</p>
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14	HAGDI35	961	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVVEC))	<p>(e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
14	HAGDI35	961	Production of IL-8 by endothelial cells (such as Human Umbilical Cord Endothelial Cells).	<p>Assays measuring production of IL-8 are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8. For example, FMAT may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8 from endothelial cells (such as human umbilical vein endothelial cells (HUVVEC)). HUVVECs are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Endothelial cells play a pivotal role in the initiation and perpetuation of inflammation and secretion of IL-8 may play an important role in recruitment and activation of immune cells such as neutrophils, macrophages, and lymphocytes.</p>
14	HAGDI35	961	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells)	<p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVVEC).</p>

				(HUVEC))	and are available from commercial sources. The expression of ICAM (CD54), a integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., <i>Atherosclerosis</i> , 149(1):99-110 (2000); Panetieri RA Jr, et al., <i>J Immunol</i> , 154(5):2358-2365 (1995); and, Grunstein MM, et al., <i>Am J Physiol Lung Cell Mol Physiol</i> , 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.
14	HAGDI35	961	Activation of transcription through NFKB response element in immune cells (such as basophils).	This reporter assay measures activation of the NFKB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-agonists or antagonists of the invention include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Marone et al., <i>Int Arch Allergy Immunol</i> 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.	
15	HAGFG51	962	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be	

16	HAGF162	963	Activation of Adipocyte ERK Signaling Pathway	<p>used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
17	HAGFY16	964	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development.</p>



18	HAHDB16	965	<p>Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of</p>
18	HAHDB16	965	<p>Activation of Adipocyte ERK Signaling Pathway</p> <p>Activation of transcription through</p>

18	HAHDB16	965	cAMP response element (CRE) in pre-adipocytes.	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>IFN<math>\gamma</math> FMA T. IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays</p>
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				disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.
19	HAHDR32	966	Activation of transcription through NFKB response element in immune cells (such as T-cells).	Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).
20	HAIBO71	967	Endothelial Cell Apoptosis	Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218

20	HAIBO71	967	<p>Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).</p>	<p>(2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Georas et al., <i>Blood</i> 92(12):4529-4538 (1998); Moffatt et al., <i>Transplantation</i> 69(7):1521-1523 (2000); Curiel et al., <i>Eur J Immunol</i> 27(8):1982-1987 (1997); and Masuda et al., <i>J Biol Chem</i> 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
20	HAIBO71	967	<p>Activation of transcription through NFAT response element in immune cells (such as natural killer cells).</p>	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in</i></p>

21	HAIBP89	968	Production of GM-CSF	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>GM-CSF FMAT. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p>
21	HAIBP89	968	Production of	IFNgamma FMAT. IFNg plays a central role in the immune system and is considered

			IFN $\gamma$ using a T cells	<p>to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
22	HAICP19	969	Bone marrow cell proliferation (fibronectin enhanced)	<p>Assay for measuring regulation of proliferation of mouse bone marrow cells (in the presence or absence of exogenous Stem Cell Factor (SCF)) on a fibronectin extracellular matrix. Mouse bone marrow cells are plated onto 96-well fibronectin fragment coated plates in 0.2 ml of serum-free medium. Secreted protein factors (test factors) are tested with appropriate negative controls in the presence and absence of SCF (5.0 ng/ml), where secreted test factor supernates represent 10% of the total assay volume. The cells are grown for 7 days. The number of proliferating cells within the wells is quantitated by measuring thymidine incorporation into cellular DNA. This and similar assays may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate</p>

22	HAICP19	969	Activation of Adipocyte PI3 Kinase Signalling Pathway	<p>proliferation of bone marrow cells. Interactions between adhesion receptors on progenitor cells and their extracellular matrix ligands are essential for the control of hematopoiesis in bone marrow stroma. These interactions may help retain CD34+ hematopoietic progenitor cells within the an appropriate bone marrow environment, and adhesive interactions can also provide important costimulatory signals. As the ability of stem cells to undergo self-renewal in vitro is dependent upon their interaction with the stromal cells and the extracellular matrix (ECM), this assay identifies factors which integrate with the ECM environment and are important for stimulating stem cell self-renewal.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9): 1101-1110 (1998); Nikoulina et al., <i>Diabetes</i> 49(2):263-271 (2000); and Schreyer et al., <i>Diabetes</i> 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., <i>Atherosclerosis</i>, 149(1):99-110 (2000); Panettieri RA Jr, et al., <i>J Immunol</i>, 154(5):2358-2365 (1995); and, Grunstein MM, et al., <i>Am J Physiol Lung Cell Mol Physiol</i>, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through</p>
22	HAICP19	969	Production of ICAM-1	

22	HAICP19	969	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include Aortic Smooth Muscle Cells (AOSMC); such as bovine AOSMC.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
22	HAICP19	969	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol</p>



23	HAIFL18	970	Activation of Adipocyte ERK Signaling Pathway	<p>71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>IFNgamma FMA T. IFNγ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNγ promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for</p>
23	HAIFL18	970	Production of IFNgamma using a T cells	

23	HA1FL18	970	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malin, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
24	HAJAF57	971	Regulation of apoptosis of immune cells (such as mast cells).	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase</p>

<p>protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., <i>J Biol Chem</i>, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., <i>J Exp Med</i>, 192(8):1093-1103 (2000); Lee et al., <i>FEBS Lett</i> 485(2-3): 122-126 (2000); Nor et al., <i>J Vasc Res</i> 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>				24	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
	Activation of Endothelial Cell JNK Signaling Pathway.	971	HAJAF57	25	<p>Assays for the regulation of transcription through the PEPCK promoter are well-known</p>
	Regulation of	972	HAJBR69		

25	HAIJR69	972	transcription through the PEPCK promoter in hepatocytes	<p>in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the PEPCK promoter in a reporter construct and regulate liver gluconeogenesis. Exemplary assays for regulation of transcription through the PEPCK promoter that may be used or routinely modified to test for PEPCK promoter activity (in hepatocytes) of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Lochhead et al., Diabetes 49(6):896-903 (2000); and Yeagley et al., J Biol Chem 275(23):17814-17820 (2000), the contents of each of which is herein incorporated by reference in its entirety. Hepatocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary liver hepatoma cells that may be used according to these assays include H4Ile cells, which contain a tyrosine amino transferase that is inducible with glucocorticoids, insulin, or cAMP derivatives.</p> <p>GM-CSF FMA.T. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be</p>
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26	HAIJBZ75	973	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Maitikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
26	HAIJBZ75	973	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may</p>

27	HAMFK58	974	Production of ICAM-1	<p>be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
28	HAMGG68	975	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUEVC))	<p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUEVC), and are available from commercial sources. The expression of ICAM (CD54), a integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA, Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p>
28	HAMGG68	975	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase</p>

29	HANG89	976	<p>activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
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29	HANGG89	976	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
30	HAPBS03	977	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are</p>



31	HAPNY86	978	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
32	HAPNY94	979	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference</p>

33	HAPPW30	980	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
34	HAPQT22	981	Production of MCP-1	<p>MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000);</p>

<p>Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>	<p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote</p>
34	<p>HAPQT22</p> <p>981</p> <p>Production of IL-6</p>	<p>982</p> <p>Activation of Adipocyte ERK Signaling Pathway</p>
35	<p>HAPUC89</p>	<p>982</p> <p>Activation of Adipocyte ERK Signaling Pathway</p>

35	HAPUC89	982	<p>or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits</p>
			<p>Activation of transcription through NFAT response element in immune cells (such as mast cells).</p>

35	HAPUC89	982	Activation of Skeletal Muscle Cell ERK Signalling Pathway	<p>many characteristics of immature mast cells.</p> <p>Kinase assay. Kinase assays, for example Elk-1 kinase assays, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
36	HASAV70	983	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>

36	HASAV70	983	Production of MIP1alpha	<p>MIP-1alpha FMT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
37	HASCG84	984	Production of MIP1alpha	<p>MIP-1alpha FMT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925</p>

37	HASC84	984	Production of IL-6	<p>(1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
38	HATAC53	985	Production of GM-CSF	<p>GM-CSF FMAT. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen</p>

39	HATBR65	986	Production of IL-6	<p>presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p>
				<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>



39	HATBR65	986	Regulation of transcription of Malic Enzyme in adipocytes	<p>disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and ME<sub>2</sub> identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeter, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barros, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>
40	HATCB92	987	Activation of transcription through serum response element in immune cells (such as T-cells).	

41	HATCP77	988	Production of IL-6	<p>disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>IL-6 FMA7. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
41	HATCP77	988	Upregulation of CD71 and activation of T cells	<p>CD71 FMA7. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and</p>

42	HATEE46	989	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., <i>Ann Rheum Dis</i> 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
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42	HATEE46	989	Production of ICAM-1	Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al. FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).
43	HBAFJ33	990	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial

43	HBAFI33	990	Upregulation of CD152 and activation of T cells	<p>asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include</p>
44	HBAFV19	991	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	

44	HBAFV19	991	Upregulation of CD152 and activation of T cells	<p>the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include,</p>
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45	HBAMB34	992	Upregulation of CD71 and activation of T cells	<p>for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Aferra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well</p>
45	HBAMB34	992	Upregulation of CD69 and activation of T cells	<p>for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Aferra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well</p>

46	HBCPB32	993	<p>known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993); the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the</p>
			<p>Activation of transcription through NFAT response element in immune cells (such as natural killer cells).</p>



47	HBCQL32	994	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
47	HBCQL32	994	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and</p>

48	HBGNU56	995	Activation of Hepatocyte ERK Signaling Pathway	<p>Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Rat liver hepatoma cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat liver hepatoma cells that may be used according to these assays include H4IIE cells, which are known to respond to glucocorticoids, insulin, or cAMP derivatives.</p> <p>IFN<math>\gamma</math> gamma FMAT. IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate</p>
49	HBHAD12	996	Production of IFN $\gamma$ gamma using a T cells	

50	HBHMA23	997	Production of TNF alpha by dendritic cells	<p>humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>TNF<math>\alpha</math> FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art.</p>
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51	HBIMB51	998	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p>
52	HBINS58	999	Production of TNF alpha by dendritic cells	<p>TNFα FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in</p>

52	HBINS58	999	Insulin Secretion	<p>the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and downregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., Endocr J, 47(3):261-9 (2000); Salapatek, A.M., et al., Mol Endocrinol, 13(8):1305-17 (1999); Filipsson, K., et al., Ann N Y Acad Sci, 865:441-4 (1998); Olson, L.K., et al., J Biol Chem, 271(28):16544-52 (1996); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include <u>HITT15</u></p>
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53	HBJFU48	1000	Activation of Adipocyte ERK Signaling Pathway	<p>Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
53	HBJFU48	1000	Production of IL-6	<p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function.</p>

54	HBJY92	1001	Production of TNF alpha by dendritic cells	<p>Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>TNF<math>\alpha</math> FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
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54	HBJY92	1001	Production of IL-6	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
55	HBJLC01	1002	Activation of Adipocyte PI3 Kinase Signalling Pathway	<p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these</p>



55	HBJLC01	1002	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10</p>
55	HBJLC01	1002	Activation of transcription through AP1 response element in immune cells (such as T-cells).	

55	HBJLC01	1002	Production of IL-6	<p>(1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
55	HBJLC01	1002	Activation of transcription through STAT6 response	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element in immune cells (such as in the human HMC-1 mast cell line) are well-known in the art and may be used or routinely</p>

56	HBJLF01	1003	<p>element in immune cells (such as mast cells).</p> <p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Sherman, Immunol Rev 179:48-56 (2001); Malaviya and Uckun, J Immunol 168:421-426 (2002); Masuda et al., J Biol Chem 275(38):29331-29337 (2000); and Masuda et al., J Biol Chem 276:26107-26113 (2001), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
56	HBJLF01	1003	<p>Activation of transcription through AP1 response element in immune cells (such as T-cells).</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
56	HBJLF01	1003	<p>Production of VCAM in endothelial cells (such as human</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression.</p>

57	HBJLH40	1004	umbilical vein endothelial cells (HUVEC))	<p>For example, FMT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malin, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
58	HBJNC59	1005	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and</p>

59	HBM/C150	1006	Production of IL-8 by immune cells (such as the human EOL-1 eosinophil cells)	<p>agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assay that measures the production of the chemokine interleukin-8 (IL-8) from immune cells (such as the EOL-1 human eosinophil cell line) are well known in the art (for example, measurement of IL-8 production by FMA/T) and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit.</p> <p>Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. IL8 is a strong immunomodulator and may have a potential proinflammatory role in immunological diseases and disorders (such as allergy and asthma).</p>
59	HBM/C150	1006	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development.</p> <p>Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its</p>

59	HBMCI50	1006	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein</p>
59	HBMCI50	1006	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	

59	HBMC150	1006	Production of IL-8 by endothelial cells (such as Human Umbilical Cord Endothelial Cells).	<p>endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p> <p>Assays measuring production of IL-8 are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8. For example, FMAT may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8 from endothelial cells (such as human umbilical vein endothelial cells (HUVEC)). HUVECs are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Endothelial cells play a pivotal role in the initiation and perpetuation of inflammation and secretion of IL-8 may play an important role in recruitment and activation of immune cells such as neutrophils, macrophages, and lymphocytes.</p>
59	HBMC150	1006	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVEC), and are available from commercial sources. The expression of ICAM (CD54),<sup>a</sup> integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p>

60	HBNAW17	1007	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., Endocr J, 47(3):261-9 (2000); Salapatek, A.M., et al., Mol Endocrinol, 13(8):1305-17 (1999); Filipsson, K., et al., Ann N Y Acad Sci, 865:441-4 (1998); Olson, L.K., et al., J Biol Chem, 271(28):16544-52 (1996); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777</p>
60	HBNAW17	1007	Insulin Secretion	



61	HBOEG11	1008	Upregulation of CD152 and activation of T cells	<p>Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegat et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-</p>
62	HBOEG69	1009	Activation of transcription through serum response element in immune cells (such as natural killer cells).	

63	HBXFL29	1010	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kynakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein</p>
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64	HCACU58	1011	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>incorporated by reference in its entirety.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
64	HCACU58	1011	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line</p>

64	HCACU58	1011	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVEC), and are available from commercial sources. The expression of ICAM (CD54), a integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p>
64	HCACU58	1011	Production of IL-10 and activation of T-cells.	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing</p>

65	HCACV51	1012	Production of IL-2 and activation of T cells	<p>conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>IL-2 FMAT: IL-2 is the principal T cell factor that allows T cell expansion and differentiation into effector cells. Assays for immunomodulatory proteins secreted by TH1 cells that promote T cell and NK cell growth and differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-2, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Laduda et al., Immunology 94(4):496-502 (1998); and Powell et al., Immunol Rev 165:287-300 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571</p>
66	HCDAF84	1013	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	

66	HCDAF84	1013	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>(1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
66	HCDAF84	1013	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells).	<p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and</p>

66	HCDAF84	1013	(HUVEC))  Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.  Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVEC), and are available from commercial sources. The expression of ICAM (CD54), a integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.
67	HCEIQ89	1014	Production of IFNgamma using a T cells	IFNgamma FMAT. IFNγ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNγ promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for

68	HCE2F54	1015	Regulation of transcription through the PEPCK promoter in hepatocytes	<p>immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the regulation of transcription through the PEPCK promoter are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the PEPCK promoter in a reporter construct and regulate liver gluconeogenesis. Exemplary assays for regulation of transcription through the PEPCK promoter that may be used or routinely modified to test for PEPCK promoter activity (in hepatocytes) of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Lochhead et al., Diabetes 49(6):896-903 (2000); and Yeagley et al., J Biol Chem 275(23):17814-17820 (2000), the contents of each of which is herein incorporated by reference in its entirety. Hepatocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary liver hepatoma cells that may be used according to these assays include H4Ile cells, which contain a tyrosine amino transferase that is inducible with glucocorticoids, insulin, or cAMP derivatives.</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the</p>
68	HCE2F54	1015	Activation of transcription through NFkB response	



68	HCE2F54	1015	<p>element in epithelial cells (such as HELA cells).</p> <p>Activation of transcription through NFKB response element in immune cells (such as the U937 human monocyte cell line).</p>	<p>invention) to regulate NFKB transcription factors and modulate expression of epithelial genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Kallischmidt B, et al., <i>Oncogene</i>, 18(21):3213-3225 (1999); Beetz A, et al., <i>Int J Radiat Biol</i>, 76(11):1443-1453 (2000); Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Valle Blazquez et al., <i>Immunology</i> 90(3):455-460 (1997); Aramburau et al., <i>J Exp Med</i> 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Epithelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary epithelial cells that may be used according to these assays include the HELA cell line.</p> <p>This assay uses a NFKB response element (which will bind NFKB transcription factors) linked to a reporter gene to measure NFKB mediated transcription in the human monocyte cell line U937. NFKB is upregulated by cytokines and other factors and NFKB element activation leads to expression of immunomodulatory genes. Activation of NFKB in monocytes can play a role in immune responses. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Valle Blazquez et al., <i>Immunology</i> 90(3):455-460 (1997); Aramburau et al., <i>J Exp Med</i> 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Monocytic cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human monocyte cells that may be used according to these assays include the U937 cell line, which is cell line derived by Sundstrom and Nilsson in 1974 from malignant cells obtained from the pleural effusion of a patient with histiocytic lymphoma.</p>
69	HCEFB80	1016	<p>Activation of transcription through GAS response element</p>	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and</p>

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69	HCEFB80	1016	Insulin Secretion	<p>agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., Endocr J, 47(3):261-9 (2000); Salapatek, A.M., et al., Mol Endocrinol, 13(8):1305-17 (1999); Filipsson, K., et al., Ann N Y Acad Sci, 865:441-4 (1998); Olson, L.K., et al., J Biol Chem, 271(28):16544-52 (1996); and, Miraglia S et. al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include <i>HITT15</i> Cells. <i>HITT15</i> are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATCC# CRL-1777</p> <p>Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad.</p>
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70	HCEGR33	1017	Production of ICAM-1	<p>Sci. USA 78: 4339-4343, 1981.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
71	HCEMP62	1018	Activation of transcription through NFKB response element in epithelial cells (such as HELA cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of epithelial genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Kaltschmidt B, et al., Oncogene, 18(21):3213-3225 (1999); Beetz A, et al., Int J Radiat Biol, 76(11):1443-1453 (2000); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburu et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Epithelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary epithelial cells that may be used according to these assays include the HELA cell line.</p>
71	HCEMP62	1018	Activation of transcription through NFKB response element in immune cells (such as the U937 human monocyte cell line).	<p>This assay uses a NFKB response element (which will bind NFKB transcription factors) linked to a reporter gene to measure NFKB mediated transcription in the human monocyte cell line U937. NFKB is upregulated by cytokines and other factors and NFKB element activation leads to expression of immunomodulatory genes. Activation of NFKB in monocytes can play a role in immune responses. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the</p>

72	HCENK38	1019	Protection from Endothelial Cell Apoptosis.	<p>invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Arambourau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Monocytic cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human monocyte cells that may be used according to these assays include the U937 cell line, which is cell line derived by Sundstrom and Nilsson in 1974 from malignant cells obtained from the pleural effusion of a patient with histiocytic lymphoma.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include</p>
72	HCENK38	1019	Activation of transcription through GAS response element in immune cells (such as T-cells).	

				assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.
72	HCENK38	1019	Activation of Hepatocyte ERK Signaling Pathway	Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Rat liver hepatoma cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat liver hepatoma cells that may be used according to these assays include H4Ile cells, which are known to respond to glucocorticoids, insulin, or cAMP derivatives.
72	HCENK38	1019	Upregulation of CD71 and activation of T cells	CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include,

73	HCEWE17	1020	Production of ICAM-1	<p>for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
74	HCEWE20	1021	Regulation of transcription of Malic Enzyme in hepatocytes	<p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MEδ identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in hepatocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeter, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein</p>

				incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the mouse 3T3-L1 cell line. 3T3-L1 is a mouse preadipocyte cell line (adherent). It is a continuous substrain of 3T3 fibroblasts developed through clonal isolation. Cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.
74	HCEWE20	1021	Production of ICAM-1	Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., <i>Atherosclerosis</i> , 149(1):99-110 (2000); Panettieri RA Jr, et al., <i>J Immunol</i> , 154(5):2358-2365 (1995); and, Grunstein MM, et al., <i>Am J Physiol Lung Cell Mol Physiol</i> , 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include Aortic Smooth Muscle Cells (AOSMC); such as bovine AOSMC.
75	HCFCU88	1022	Upregulation of CD152 and activation of T cells	CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160



76	HCFMV71	1023	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>(2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line, which is an IL-2 dependent suspension culture cell line that also responds to IL-4.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, bind to CREB transcription factor, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J</p>
76	HCFMV71	1023	Activation of transcription through cAMP response element in immune cells (such as T-cells).	

76	HCFMV71	1023	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4 cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
76	HCFMV71	1023	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>

77	HCFNN01	1024	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
78	HCFOM18	1025	Upregulation of HLA-DR and activation of T cells	<p>HLA-DR FMAT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases (e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary</p>

78	HCFOM18	1025	Upregulation of CD71 and activation of T cells	<p>human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
78	HCFOM18	1025	Upregulation of CD69 and activation of T cells	<p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or</p>

78	HCFOM18	1025	Upregulation of CD152 and activation of T cells	<p>antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD152 FMT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
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79	HCHNF25	1026	Calcium flux in immune cells (such as monocytes)	Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux in immune cells (such as monocytes) include assays disclosed in: Chan, CC, et al., J Pharmacol Exp Ther, 269(3):891-896 (1994); Andersson, K, et al., Cytokine, 12(12):1784-1787 (2000); Scully, SP, et al., J Clin Invest, 74(2) 589-599 (1984); and, Sullivan, E, et al., Methods Mol Biol, 114:125-133 (1999), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the THP-1 monocyte cell line.
80	HCMQS56	1027	Production of ICAM-1	Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).
81	HCMST14	1028	Production of IL-6	IL-6 FMT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate

82	HCMTB45	1029	Upregulation of CD152 and activation of T cells	<p>immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>CD152 FMTAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are</p>
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83	HCNSB61	1030	Activation of Adipocyte ERK Signaling Pathway	<p>primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
83	HCNSB61	1030	Endothelial Cell Apoptosis	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these</p>



84	HCNSD93	1031	Regulation of apoptosis of immune cells (such as mast cells).	<p>assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells).</p> <p>Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., <i>J Biol Chem</i>, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., <i>J Exp Med</i>, 192(8):1093-1103 (2000); Lee et al., <i>FEBS Lett</i> 485(2-3): 122-126 (2000); Nor et al., <i>J Vasc Res</i> 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
85	HCNSM70	1032	Myoblast cell proliferation	<p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" <i>Dev Growth Differ</i> Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" <i>J Endocrinol Mar;144(3):539-53</i> (1995); and, Pampusch MS, et al., "Effect of</p>

86	HCOOS80	1033	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
87	HCUBS50	1034	Activation of transcription through GAS response element in immune cells (such as eosinophils).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate gene expression (commonly via STAT transcription factors) involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>

87	HCUBS50	1034	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995); the contents of each of which are herein incorporated by reference in its entirety. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate or inhibit activation of immune cells include assays disclosed and/or cited in: Mayumi M., "EoL-1, a human eosinophilic cell line" Leuk Lymphoma; Jun;7(3):243-50 (1992); Bhattacharya S., "Granulocyte macrophage colony-stimulating factor and interleukin-5 activate STAT5 and induce CIS1 mRNA in human peripheral blood eosinophils" Am J Respir Cell Mol Biol; Mar;24(3):312-6 (2001); and, Du J, et al., "Engagement of the CrkL adapter in interleukin-5 signaling in eosinophils" J Biol Chem; Oct 20;275(42):33167-75 (2000); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are a type of immune cell important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Increases in GAS mediated transcription in eosinophils is typically a result of STAT activation, normally a direct consequence of interleukin or other cytokine receptor stimulation (e.g. IL3, IL5 or GMCSF).</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line, which is an IL-2 dependent suspension culture cell line that also responds to IL-4.</p>
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88	HCUCK44	1035	Protection from Endothelial Cell Apoptosis.	<p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
88	HCUCK44	1035	Production of MCP-1	<p>MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>

89	HCUJO60	1036	Activation of transcription through serum response element in immune cells (such as natural killer cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
90	HCUHK65	1037	Activation of transcription through serum response element in immune cells (such as natural killer cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
91	HCUJM65	1038	Regulation of transcription via	Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of

			<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p>
91	HCUIM65	1038	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies</p>

91	HCUIM65	1038	Activation of transcription through serum response element in pre-adipocytes.	<p>and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
91	HCUIM65	1038	Stimulation of Calcium Flux in pancreatic beta cells.	<p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. For example, the FLPR assay may be used to measure influx of calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to</p>

91	HCUM65	1038	<p>activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Satin LS, et al., <i>Endocrinology</i>, 136(10):4589-601 (1995); Mogami H, et al., <i>Endocrinology</i>, 136(7):2960-6 (1995); Richardson SB, et al., <i>Biochem J</i>, 288 ( Pt 3):847-51 (1992); and, Meats, JE, et al., <i>Cell Calcium</i> 1989 Nov-Dec;10(8):535-41 (1989), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATCC# CRL-1777 Refs: Lord and Ashcroft. <i>Biochem. J.</i> 219: 547-551; Santerre et al. <i>Proc. Natl. Acad. Sci. USA</i> 78: 4339-4343, 1981.</p>
91	HCUM65	1038	<p>Activation of transcription through GATA-3 response element in immune cells (such as mast cells).</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Flavell et al., <i>Cold Spring Harb Symp Quant Biol</i> 64:563-571 (1999); Rodriguez-Palmero et al., <i>Eur J Immunol</i> 29(12):3914-3924 (1999); Zheng and Flavell, <i>Cell</i> 89(4):587-596 (1997); and Henderson et al., <i>Mol Cell Biol</i> 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to</p>



91	HCUIM65	1038	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
91	HCUIM65	1038	Activation of transcription through NFKB response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFKB signaling pathway in HMC-1 human mast cell line. Activation of NFKB in mast cells has been linked to production of certain cytokines, such as IL-6 and IL-9. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>

91	HCUIM65	1038	Activation of transcription through serum response element in immune cells (such as T-cells).	disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Stassen et al., J Immunol 166(7):4391-8 (2001); and Marquardt and Walker, J Allergy Clin Immunol 105(3):500-5 (2000), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.
91	HCUIM65	1038	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to bind the serum response factor and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).
91	HCUIM65	1038	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346

91	HCUIM65	1038	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>(1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curjel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
91	HCUIM65	1038	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-</p>

91	HCUIM65	1038	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
92	HCWEB58	1039	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-</p>

93	HCWGU37	1040	Calcium flux in chondrocytes	<p>844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux in chondrocytes include assays disclosed in: Asada S, et al., Inflamm Res, 50(1):19-23 (2001); Schwartz Z, et al., J Bone Miner Res, 6(7):709-718 (1991); Iannotti JP, et al., J Bone Joint Surg Am, 67(1): 113-120 (1985); Sullivan E., et al., Methods Mol Biol 1999; 114:125-133 (1999), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include bovine chondrocytes.</p>
94	HCWKCI5	1041	Regulation of transcription via DMEF1 response element in adipocytes and pre-adipocytes	<p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair</p>

94	HCWKCI5	1041	<p>regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE)</p>
94	HCWKCI5	1041	<p>Activation of transcription through cAMP response element (CRE) in pre-adipocytes.</p>

94	HCWKCI5	1041	transcription through serum response element in pre-adipocytes.	<p>are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate gene expression (commonly via STAT transcription factors) involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995); the contents of each of which are herein incorporated by reference in its entirety. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate or inhibit activation of immune cells include assays disclosed and/or cited in: Mayumi M., "EoL-1, a human eosinophilic cell line" Leuk Lymphoma; Jun;7(3):243-50 (1992); Bhattacharya S, "Granulocyte macrophage colony-stimulating factor and interleukin-5 activate</p>
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94	HCWKCI5	1041	<p>STAT5 and induce CIS1 mRNA in human peripheral blood eosinophils" Am J Respir Cell Mol Biol, Mar;24(3):312-6 (2001); and, Du J, et al., "Engagement of the Crkl adapter in interleukin-5 signaling in eosinophils" J Biol Chem; Oct 20;275(42):33167-75 (2000); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are a type of immune cell important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Increases in GAS mediated transcription in eosinophils is typically a result of STAT activation, normally a direct consequence of interleukin or other cytokine receptor stimulation (e.g. IL3, IL5 or GMCSF).</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFkB responsive element in EOL-1 cells) may link the NFkB element to a reporter gene and binds to the NFkB transcription factor, which is upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely</p>
94	HCWKCI5	1041	<p>Activation of transcription through NFkB response element in immune cells (such as EOL1 cells).</p> <p>Activation of transcription through GATA-3 response element in immune</p>



94	HCWKC15	1041	cells (such as mast cells).	<p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
			Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available</p>

94	HCW/KC15	1041	<p>(e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFkB signaling pathway in HMC-1 human mast cell line. Activation of NFkB in mast cells has been linked to production of certain cytokines, such as IL-6 and IL-9. Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Stassen et al., J Immunol 166(7):4391-8 (2001); and Marquardt and Walker, J Allergy Clin Immunol 105(3):500-5 (2000), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
94	HCW/KC15	1041	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element in immune cells (such as in the human HMC-1 mast cell line) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Sherman, Immunol Rev 179:48-</p>

94	HCWKC15	1041	Activation of transcription through NFKB response element in immune cells (such as basophils).	<p>56 (2001); Malaviya and Uckun, J Immunol 168:421-426 (2002); Masuda et al., J Biol Chem 275(38):29331-29337 (2000); and Masuda et al., J Biol Chem 276:26107-26113 (2001), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFKB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-agonists or antagonists of the invention include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al., Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to bind the serum response factor and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-</p>
94	HCWKC15	1041	Activation of transcription through serum response element in immune cells (such as T-cells).	

94	HCWKC15	1041	Activation of transcription through NFKB response element in immune cells (such as natural killer cells).	<p>368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
94	HCWKC15	1041	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and</p>

94	HCWKCI5	1041	Activation of transcription through API response element in immune cells (such as T-cells).	<p>Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the API response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p>
94	HCWKCI5	1041	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T</p>

94	HCWKC15	1041	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
94	HCWKC15	1041	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>

94	HCWKC15	1041	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
94	HCWKC15	1041	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE)</p>

95	HCWLD74	1042	transcription through serum response element in immune cells (such as natural killer cells).	<p>are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
			Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an</p>



95	HCWLD74	1042	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the</p>
95	HCWLD74	1042	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the</p>

95	HCWLD74	1042	<p>invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line, which is a suspension culture of IL-2 dependent T cells that also respond to IL-4.</p>
95	HCWLD74	1042	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention</p>

95	HCWLD74	1042	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>(including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety, T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
95	HCWLD74	1042	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>

95	HCWLD74	1042	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
96	HCWUM50	1043	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes</p>

97	HCYBG92	1044	<p>Activation of transcription through NFAT response element in immune cells (such as mast cells).</p>	<p>107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
98	HDABR72	1045	<p>Activation of Adipocyte ERK Signaling Pathway</p>	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote</p>

99	HDHEB60	1046	<p>or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, <i>Exp Clin Endocrinol Diabetes</i> 107(2):126-132 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Reusch et al., <i>Mol Cell Biol</i> 20(3):1008-1020 (2000); and Klemm et al., <i>J Biol Chem</i> 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Preadipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast</p>
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99	HDHEB60	1046	Myoblast cell proliferation	cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art. Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.
99	HDHEB60	1046	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMTAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.
99	HDHEB60	1046	Activation of	Assays for the activation of transcription through the Signal Transducers and

			transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
99	HDHEB60	1046	Activation of transcription through API response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the API response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p>
99	HDHEB60	1046	Activation of transcription through	<p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of</p>



99	HDHEB60	1046	CD28 response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
99	HDHEB60	1046	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or</p>

99	HDH60	1046	<p>Activation of transcription through STAT6 response element in immune cells (such as T-cells).</p>	<p>routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curjel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
99	HDH60	1046	<p>Activation of transcription through NFKB response element in immune cells (such as T-cells).</p>	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response</p>

99	HDHEB60	1046	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
100	HDHIA94	1047	Production of TNF alpha by dendritic cells	<p>TNF<math>\alpha</math> F<math>\mu</math>MT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines</p>

101	HDHMA72	1048	Activation of transcription through NFKB response element in immune cells (such as natural killer cells).	<p>such as tumor necrosis factor alpha (TNFa), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al., Immunology 90(3):455-460 (1997); Arambourau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
102	HDLAC10	1049	Activation of transcription through serum response element in immune cells (such	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes</p>

102	HDLAC10	1049	as T-cells).	<p>involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
103	HDLAO28	1050	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be</p>

104	HDPB132	1051	Activation of Adipocyte ERK Signaling Pathway	<p>used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of eosinophil cells</p>
105	HDPBQ71	1052	Regulation of viability or proliferation of immune cells (such as human eosinophil	

			EOL-1 cells).	and cell lines. For example, the CellTiter-Glo <sup>®</sup> Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eosinophil cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary eosinophil cells that may be used according to these assays include EOL-1 Cells.
105	HDPBQ71	1052	Production of IFN $\gamma$ using a T cells	IFN $\gamma$ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN $\gamma$ promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon $\gamma$ (IFN $\gamma$ ), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.
106	HDPJC91	1053	Activation of Skeletal	Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase

107	HDPCO25	Mucle Cell PI3 Kinase Signalling Pathway	signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.
1054		Regulation of viability and proliferation of pancreatic beta cells.	Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ohtani KI, et al., Endocrinology, 139(1):172-8 (1998); Krautheim A, et al, Exp Clin Endocrinol Diabetes, 107 (1):29-34 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft.



107	HDPCO25	1054	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
108	HDPCY37	1055	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g.,</p>

108	HDPCY37	1055	<p>through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
108	HDPCY37	1055	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation</p>

109	HDPFB02	1056	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Flavell et al., <i>Cold Spring Harb Symp Quant Biol</i> 64:563-571 (1999); Rodriguez-Palmero et al., <i>Eur J Immunol</i> 29(12):3914-3924 (1999); Zheng and Flavell, <i>Cell</i> 89(4):587-596 (1997); and Henderson et al., <i>Mol Cell Biol</i> 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
109	HDPFB02	1056	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUEVC))	<p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUEVC), and are available from commercial sources. The expression of ICAM (CD54), a integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or</p>

110	HDPFF39	1057	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., <i>Atherosclerosis</i>, 149(1):99-110 (2000); Panettieri RA Jr, et al., <i>J Immunol</i>, 154(5):2358-2365 (1995); and, Grunstein MM, et al., <i>Am J Physiol Lung Cell Mol Physiol</i>, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
111	HDPFF29	1058	Myoblast cell proliferation	<p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" <i>Dev Growth Differ</i> Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" <i>J Endocrinol Mar;144(3):539-53</i> (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine</p>

112	HDPGI49	1059	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>TNF<math>\alpha</math> FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention</p>
113	HDPGP94	1060	Production of TNF alpha by dendritic cells	

				<p>(including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
113	HDPGP94	1060	Production of MIP1alpha	<p>MIP-1alpha FMAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
114	HDPHI51	1061	Regulation of transcription through the FAS promoter	<p>Assays for the regulation of transcription through the FAS promoter element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the</p>

114	HDPHF151	1061	element in hepatocytes	<p>invention) to activate the FAS promoter element in a reporter construct and to regulate transcription of FAS, a key enzyme for lipogenesis. FAS promoter is regulated by many transcription factors including SREBP. Insulin increases FAS gene transcription in livers of diabetic mice. This stimulation of transcription is also somewhat glucose dependent. Exemplary assays that may be used or routinely modified to test for FAS promoter element activity (in hepatocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Xiong, S., et al., Proc Natl Acad Sci U.S.A., 97(8):3948-53 (2000); Roder, K., et al., Eur J Biochem, 260(3):743-51 (1999); Oskouian B, et al., Biochem J, 317 ( Pt 1):257-65 (1996); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays, such as H4IIE cells, are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays include rat liver hepatoma cell line(s) inducible with glucocorticoids, insulin, or cAMP derivatives.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
115	HDPJF37	1062	Activation of	Assays for the activation of transcription through the Nuclear Factor of Activated T

116	HDPMM88	1063	transcription through NFAT response in immune cells (such as T-cells).	<p>cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>
			Myoblast cell proliferation	<p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after</p>



117	HDPNC61	1064	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>culture in differentiation media.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
117	HDPNC61	1064	Activation of transcription through GAS response element in immune cells (such as eosinophils).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate gene expression (commonly via STAT transcription factors) involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J</p>

117	HDPNC61	1064	Activation of Endothelial Cell ERK Signaling Pathway.	<p>Immunol 155(10):4582-4587 (1995); the contents of each of which are herein incorporated by reference in its entirety. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate or inhibit activation of immune cells include assays disclosed and/or cited in: Mayumi M., "EoL-1, a human eosinophilic cell line" Leuk Lymphoma; Jun;7(3):243-50 (1992); Bhattacharya S, "Granulocyte macrophage colony-stimulating factor and interleukin-5 activate STAT5 and induce CIS1 mRNA in human peripheral blood eosinophils" Am J Respir Cell Mol Biol; Mar;24(3):312-6 (2001); and, Du J, et al., "Engagement of the CrkL adapter in interleukin-5 signaling in eosinophils" J Biol Chem; Oct 20;275(42):33167-75 (2000); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are a type of immune cell important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Increases in GAS mediated transcription in eosinophils is typically a result of STAT activation, normally a direct consequence of interleukin or other cytokine receptor stimulation (e.g. IL3, IL5 or GM-CSF).</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Berra et al., Biochem Pharmacol 60(8):1171-1178 (2000); Gupta et al., Exp Cell Res 247(2):495-504 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability,</p>
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117	HDPNC61	1064	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4 cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
118	HDPND46	1065	Activation of Adipocyte PI3 Kinase Signalling Pathway	<p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
118	HDPND46	1065	Production of IL-4	<p>IL-4 FMAT. Assays for immunomodulatory proteins secreted by TH2 cells that stimulate B cells, T cells, macrophages and mast cells and promote polarization of</p>

				<p>CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cells, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-4, and the stimulation of immune cells, such as B cells, T cells, macrophages and mast cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):277-283 (1994); Yssel et al., Res Immunol 144(8):610-616 (1993); Bagley et al., Nat Immunol 1(3):257-261 (2000); and van der Graaff et al., Rheumatology (Oxford) 38(3):214-220 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
118	HDPND46	1065	Production of IL-8 by endothelial cells (such as Human Umbilical Cord Endothelial Cells).	<p>Assays measuring production of IL-8 are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8. For example, FMAT may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8 from endothelial cells (such as human umbilical vein endothelial cells (HUVEC)). HUVECs are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Endothelial cells play a pivotal role in the initiation and perpetuation of inflammation and secretion of IL-8 may play an important role in recruitment and activation of immune cells such as neutrophils, macrophages, and lymphocytes.</p>
119	HDPOE32	1066	Production of ICAM-1	Assays for measuring expression of ICAM-1 are well-known in the art and may be

120	HDPOH06	1067	Production of ICAM-1	<p>used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
120	HDPOH06	1067	Production of IL-10 and activation of T-cells.	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma.</p>

121	HDPOZ56	1068	Activation of transcription through GAS response element in epithelial cells (such as HELA cells).	<p>Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: You M, et al, J Biol Chem, 272(37):23376-23381(1997); Min W, et al., Circ Res, 83(8):815-823 (1998); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Epithelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary epithelial cells that may be used according to these assays include the HELA cell line.</p>
121	HDPOZ56	1068	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in</p>

122	HDPSP54	1069	Activation of Endothelial Cell JNK Signaling Pathway.	<p>functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
122	HDPSP54	1069	Regulation of apoptosis in pancreatic beta cells.	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Apoptosis in pancreatic beta is associated with induction and progression of diabetes. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Loweth, AC, et al., <i>FEBS Lett</i>, 400(3):285-8 (1997); Saini, KS, et al., <i>Biochem Mol Biol Int</i>, 39(6):1229-36 (1996); Krauthaim, A., et al., <i>Br J Pharmacol</i>, 129(4):687-94 (2000); Chandra J, et al., <i>Diabetes</i>, 50 Suppl 1:S44-7 (2001); Suk K, et al., <i>J Immunol</i>, 166(7):4481-9 (2001); Tejedo J, et al., <i>FEBS Lett</i>, 459(2):238-43 (1999); Zhang, S., et al., <i>FEBS Lett</i>, 455(3):315-20 (1999); Lee et al., <i>FEBS Lett</i> 485(2-3): 122-126 (2000); Nor et al., <i>J Vasc Res</i> 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Pancreatic cells that may be</p>

122	HDPSP54	1069	Production of IL-10 and activation of T-cells.	<p>used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include RIN-m. RIN-m is a rat adherent pancreatic beta cell insulinoma cell line derived from a radiation induced transplantable rat islet cell tumor. The cells produce and secrete islet polypeptide hormones, and produce insulin, somatostatin, and possibly glucagon. ATTC: #CRL-2057 Chick et al. Proc. Natl. Acad. Sci. 1977 74:628; AF et al. Proc. Natl. Acad. Sci. 1980 77:3519.</p> <p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and</p>
123	HDPTD15	1070	Activation of transcription through AP1 response element in immune cells (such as T-cells).	



123	HDPTD15	1070	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
123	HDPTD15	1070	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used</p>

123	HDPTD15	1070	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of</p>
123	HDPTD15	1070	Activation of transcription through CD28 response element in immune cells (such as T-cells).	
124	HDPTK41	1071	Activation of transcription through	

124	HDPTK41	1071	cAMP response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>IFNgamma FMAT. IFNγ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNγ promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNγ), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays</p>
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125	HDPUG50	1072	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
126	HDPUH26	1073	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are</p>

126	HDPUH26	1073	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
127	HDPUW68	1074	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are</p>

127	HDPW68	1074	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
127	HDPW68	1074	Stimulation of Calcium Flux in pancreatic beta cells.	<p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. For example, the FLPR assay may be used to measure influx of calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Satin LS, et al., Endocrinology, 136(10):4589-601 (1995); Mogami H, et al., Endocrinology, 136(7):2960-6 (1995); Richardson SB, et al., Biochem J, 288 ( Pt 3):847-51 (1992); and, Meats, JE, et al., Cell Calcium 1989 Nov-Dec;10(8):535-41 (1989), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated.</p>

127	HDPVW68	1074	Activation of Skeletal Muscle Cell PI3 Kinase Signalling Pathway	<p>Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
128	HDPVH60	1075	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are</p>

129	HDPVW11	1076	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>
130	HDPWN93	1077	Activation of transcription through cAMP response element in immune cells (such as T-cells).	



130	HDPWN93	1077	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein</p>
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130	HDPWN93	1077	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>incorporated by reference in its entirety.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
131	HDPWU34	1078	Activation of Adipocyte PI3 Kinase Signalling Pathway	<p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Nikoulina et al., <i>Diabetes</i> 49(2):263-271 (2000); and Schreyer et al., <i>Diabetes</i> 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like</p>

131	HDPWU34	1078	Activation of transcription through GAS response element in immune cells (such as eosinophils).	<p>conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate gene expression (commonly via STAT transcription factors) involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995); the contents of each of which are herein incorporated by reference in its entirety. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate or inhibit activation of immune cells include assays disclosed and/or cited in: Mayumi M., "EoL-1, a human eosinophilic cell line" Leuk Lymphoma; Jun;7(3):243-50 (1992); Bhattacharya S, "Granulocyte macrophage colony-stimulating factor and interleukin-5 activate STAT5 and induce CIS1 mRNA in human peripheral blood eosinophils" Am J Respir Cell Mol Biol; Mar;24(3):312-6 (2001); and, Du J, et al., "Engagement of the CrkL adapter in interleukin-5 signaling in eosinophils" J Biol Chem; Oct 20;275(42):33167-75 (2000); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are a type of immune cell important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Increases in GAS mediated transcription in eosinophils is typically a result of STAT activation, normally a direct consequence of interleukin or other cytokine receptor stimulation (e.g. IL3, IL5 or GM-CSF).</p>
132	HDQHD03	1079	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively</p>

132	HDQHD03	1079	<p>on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveeg et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing</p>
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133	HD7BD53	1080	Myoblast cell proliferation	<p>conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
134	HDTBP04	1081	Production of MCP-1	<p>MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these</p>

134	HDTBP04	1081	Production of IL-6	<p>assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
134	HDTBP04	1081	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al. FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that</p>

135	HDTDQ23	1082	Endothelial Cell Apoptosis	<p>may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
135	HDTDQ23	1082	Stimulation of Calcium Flux in pancreatic beta cells.	<p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. For example, the FLPR assay may be used to measure influx of calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Satin LS, et al., Endocrinology, 136(10):4589-601 (1995); Mogami H, et al., Endocrinology, 136(7):2960-6 (1995); Richardson SB, et al., Biochem J, 288 ( Pt 3):847-51 (1992); and, Meats, JE, et al., Cell Calcium 1989 Nov-Dec;10(8):535-41 (1989), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are</p>

136	HDTEK44	1083	Production of IFNgamma using Natural Killer cells	<p>publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777</p> <p>Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>IFNgamma FMAT. IFNg plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNg promotes TH1 and inhibits TH2; promotes IgG2a and inhibits IgE; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity.</p> <p>Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNg), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Natural Killer (NK) cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p>
137	HDTEN81	1084	Upregulation of CD152	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells.</p>



138	HDTFE17	1085	and activation of T cells	<p>CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-</p>
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139	HDTGC73	1086	Production of ICAM-1	<p>844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
140	HDTT10	1087	Production of IL-6	<p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated</p>

141	HDTMK50	1088	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p>
142	HE2DY70	1089	Production of IFNgamma using a T cells	<p>IFNgamma FMAT. IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention</p>

				(including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.
143	HE2EB74	1090	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forter et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.
144	HE2EN04	1091	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation,

145	HE2FV03	1092	Production of ICAM-1	<p>activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" <i>Clin Exp Immunol</i>; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" <i>J Exp Med</i>; Feb 2;187(3):415-25 (1998); <i>J Allergy Clin Immunol</i> 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" <i>J Allergy Clin Immunol</i>; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., <i>Atherosclerosis</i>, 149(1):99-110 (2000); Panettieri RA Jr, et al., <i>J Immunol</i>, 154(5):2358-2365 (1995); and, Grunstein MM, et al., <i>Am J Physiol Lung Cell Mol Physiol</i>, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used</p>
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146	HE2NV57	1093	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>according to these assays include Aortic Smooth Muscle Cells (AOSMC); such as bovine AOSMC.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the cAMP response element are well-</p>
146	HE2NV57	1093	Activation of transcription through AP1 response element in immune cells (such as T-cells).	
146	HE2NV57	1093	Activation of	

146	HE2NV57	1093	transcription through cAMP response element in immune cells (such as T-cells).	<p>known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
146	HE2NV57	1093	Activation of transcription through GAS response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the

146	HE2NV57	1093	in immune cells (such as T-cells).	<p>invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., Endocr J, 47(3):261-9 (2000); Salapatek, A.M., et al., Mol Endocrinol, 13(8):1305-17 (1999); Filipsson, K., et al., Ann N Y Acad Sci, 865:441-4 (1998); Olson, L.K., et al., J Biol Chem, 271(28):16544-52 (1996); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATCC# CRL-1777</p> <p>Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p>
146	HE2NV57	1093	Activation of	Assays for the activation of transcription through the CD28 response element are well-



147	HE2PD49	1094	transcription through CD28 response element in immune cells (such as T-cells).	<p>known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 3(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>
				<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art.</p>

148	HE2PY40	1095	Upregulation of CD152 and activation of T cells	<p>Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>CD152.FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include</p>
149	HE6EU50	1096	Activation of transcription through NFAT response in immune cells (such as T-cells).	

149	HE6EU50	1096	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOL.T4 cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
149	HE6EU50	1096	Upregulation of CD69 and activation of T cells	<p>CD69 FMA.T. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of</p>

150	HE8DS15	1097	<p>T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
150	HE8DS15	1097	<p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate</p>

151	HE8MH91	1098	Activation of transcription through NFKB response element in immune cells (such as B-cells).	<p>transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MED identified as putative PPAR response elements. ME promoter may also be used or routinely modified to test transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeter, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Gri G, et al., Biol Chem, 273(11):6431-6438 (1998); Pyatt DW, et al., Cell Biol Toxicol 2000;16(1):41-51 (2000); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al., Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary immune cells that may be used according to these assays include the Reh B-cell line.</p>
152	HE8QV67	1099	Production of IL-4	IL-4 FMAT. Assays for immunomodulatory proteins secreted by TH2 cells that

153	HE9BK23	1100	<p>stimulate B cells, T cells, macrophages and mast cells and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cells, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-4, and the stimulation of immune cells, such as B cells, T cells, macrophages and mast cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):277-283 (1994); Yssel et al., Res Immunol 144(8):610-616 (1993); Bagley et al., Nat Immunol 1(3):257-261 (2000); and van der Graaff et al., Rheumatology (Oxford) 38(3):214-220 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g.,</p>
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153	HE9BK23	1100	Activation of transcription through CD28 response element in immune cells (such as T-cells).	through the ATCC). Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.
154	HE9CP41	1101	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
155	HE9DG49	1102	Activation of transcription through API response element in immune cells (such as T-cells).	Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through

155	HE9DG49	1102	as T-cells).	<p>the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
155	HE9DG49	1102	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the</p>



155	HE9DG49	1102	<p>invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
155	HE9DG49	1102	<p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are</p>

156	HE9HY07	1103	Activation of Adipocyte ERK Signaling Pathway	<p>herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, <i>Exp Clin Endocrinol Diabetes</i> 107(2):126-132 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the regulation of transcription through the FAS promoter element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the FAS promoter element in a reporter construct and to regulate transcription of FAS, a key enzyme for lipogenesis. FAS promoter is regulated by many transcription factors including SREBP. Insulin increases FAS gene transcription in livers of diabetic mice. This stimulation of transcription is also somewhat glucose dependent. Exemplary assays that may be used or routinely modified to test for FAS promoter element activity (in hepatocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Xiong, S., et al., <i>Proc Natl Acad Sci U.S.A.</i>, 97(8):3948-53 (2000); Roder, K., et al., <i>Eur J Biochem</i>, 260(3):743-51 (1999); Oskouian B, et al., <i>Biochem J</i>, 317 ( Pt 1):257-</p>
156	HE9HY07	1103	Regulation of transcription through the FAS promoter element in hepatocytes	

157	HE9NN84	1104	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>65 (1996); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays, such as H4IIE cells, are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays include rat liver hepatoma cell line(s) inducible with glucocorticoids, insulin, or cAMP derivatives.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
157	HE9NN84	1104	Activation of transcription through GATA-3 response element in immune cells (such as mast	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and</p>

157	HE9NN84	1104	cells).	<p>agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
			Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to</p>

158	HE9OW20	1105	Activation of Skeletal Muscle Cell ERK Signalling Pathway	<p>these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Kinase assay. Kinase assays, for example Elk-1 kinase assays, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, <i>Exp Clin Endocrinol Diabetes</i> 107(2):126-132 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>HLA-DR FMT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases (e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach"</p>
158	HE9OW20	1105	Upregulation of HLA-DR and activation of T cells	

159	HE9RM63	1106	Activation of transcription through NFKB response element in epithelial cells (such as HELA cells).	<p>Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of epithelial genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Kaltschmidt B, et al., Oncogene, 18(21):3213-3225 (1999); Beetz A, et al., Int J Radiat Biol, 76(11):1443-1453 (2000); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al., Immunology 90(3):455-460 (1997); Aramburu et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., -29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Epithelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary epithelial cells that may be used according to these assays include the HELA cell line.</p>
160	HEAAR07	1107	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>

161	HEBAE88	1108	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
162	HEBBN36	1109	Regulation of apoptosis of immune cells (such as mast cells).	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol</p>

163	HEBCM63	1110	<p>Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate gene expression (commonly via STAT transcription factors) involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995); the contents of each of which are herein incorporated by reference in its entirety. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate or inhibit activation of immune cells include assays disclosed and/or cited in: Mayumi M., "EoL-1, a human eosinophilic cell line" Leuk Lymphoma; Jun;7(3):243-50 (1992); Bhattacharya S, "Granulocyte macrophage colony-stimulating factor and interleukin-5 activate STAT5 and induce CIS1 mRNA in human peripheral blood eosinophils" Am J Respir Cell Mol Biol; Mar;24(3):312-6 (2001); and, Du J, et al., "Engagement of the CrkL adapter in interleukin-5 signaling in eosinophils" J Biol Chem; Oct 20;275(42):33167-75 (2000); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are a type of immune cell important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Increases in GAS mediated transcription in eosinophils is</p>
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163	HEBCM63	1110	Production of IFN $\gamma$ using a T cells	<p>typically a result of STAT activation, normally a direct consequence of interleukin or other cytokine receptor stimulation (e.g. IL3, IL5 or GM-CSF).</p> <p>IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon <math>\gamma</math> (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
164	HEBEJ18	1111	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and</p>

165	HEEAG23	1112	Activation of Adipocyte ERK Signaling Pathway	agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
165	HEEAG23	1112	Activation of Adipocyte ERK Signaling Pathway	Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.
165	HEEAG23	1112	Activation of Skeletal Muscle Cell P13 Kinase Signalling Pathway	Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for P13 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for P13 kinase activity that may be used or routinely modified to test P13 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or

165	HEEAG23	1112	Upregulation of CD69 and activation of T cells	<p>antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to</p>
166	HEEAJ02	1113	Activation of transcription through AP1 response element	

			in immune cells (such as T-cells).	modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
167	HEEAQ11	1114	Regulation of viability or proliferation of immune cells (such as human eosinophil EOL-1 cells).	Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of eosinophil cells and cell lines. For example, the CellTiter-Glo Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eosinophil cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary eosinophil cells that may be used according to these assays include EOL-1 Cells.
167	HEEAQ11	1114	Activation of T-Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature

167	HEEAQ11	1114	Upregulation of CD71 and activation of T cells	<p>410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
168	HEEBI05	1115	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that</p>

169	HEGAH43	1116	Endothelial Cell Apoptosis	<p>may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (BAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
170	HEGAN94	1117	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure</p>

171	HEGBS69	1118	Production of IL-6	<p>ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
171	HEGBS69	1118	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively</p>

172	HEL GK31	1119	Production of IL-6	<p>on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveeg et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al.,</p>
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172	HELK31	1119	Production of IFNgamma using a T cells	<p>"Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IFNgamma FMAT. IFNγ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNγ promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNγ), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of</p>
173	HELHD85	1120	Activation of transcription through	

174	HELHL48	1121	serum response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and</p>
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175	HEMAM41	1122	Production of TNF alpha by dendritic cells	may be preactivated to enhance responsiveness to immunomodulatory factors. TNFa FMAAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFa), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
175	HEMAM41	1122	Production of IL-6	IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and

176	HEPAA46	1123	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes</p>
177	HEPAB80	1124	Activation of Adipocyte ERK Signaling Pathway	

177	HEPAB80	1124	Regulation of viability and proliferation of pancreatic beta cells.	<p>107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ohtani KI, et al., Endocrinology, 139(1):172-8 (1998); Krautheim A, et al, Exp Clin Endocrinol Diabetes, 107(1):29-34 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p>
178	HEQAK71	1125	Production of TNF alpha by dendritic cells	<p>TNFα F<sub>1</sub>MAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of</p>

178	HEQAK71	1125	Production of ICAM-1	<p>the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
179	HERAR44	1126	Activation of transcription through NFKB response element in immune cells (such as basophils).	<p>This reporter assay measures activation of the NF<math>\kappa</math>B signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-</p>

179	HERAR44	1126	Production of ICAM-1	<p>response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al, Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
180	HESAJ10	1127	Regulation of apoptosis of immune cells (such as mast cells).	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2):</p>

181	HETAB45	1128	Activation of transcription through NFKB response element in immune cells (such as B-cells).	<p>75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Gri G, et al., Biol Chem, 273(11):6431-6438 (1998); Pyatt DW, et al., Cell Biol Toxicol 2000;16(1):41-51 (2000); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al., Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary immune cells that may be used according to these assays include the Reh B-cell line.</p>
182	HETBR16	1129	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
183	HETLM70	1130	Production of TNF alpha by dendritic cells	<p>TNFa FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide</p>



183	HETLM70	1130	Production of MIP1alpha	<p>variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>MIP-1alpha FMAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1<math>\alpha</math>), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of</p>
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183	HETLM70	1130	Production of IL-6	<p>which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
184	HFABG18	1131	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced</p>

184	HFABG18	1131	Protection from Endothelial Cell Apoptosis.	<p>activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
184	HFABG18	1131	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention</p>

184	HFABG18	1131	Production of IFNgamma using a T cells	<p>(including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>IFNgamma FMAT. IFNγ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNγ promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNγ), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to</p>
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185	HFAMB72	1132	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	immunomodulatory factors. Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.
186	HFAMH77	1133	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be

186	HFAMH77	1133	Production of IFNgamma using a T cells	<p>used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>IFNgamma FMAT. IFNγ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNγ promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNγ), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
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187	HFCCQ50	1134	Production of TNF alpha by dendritic cells	<p>TNFα FMAAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
187	HFCCQ50	1134	Production of IL-4	<p>IL-4 FMAAT. Assays for immunomodulatory proteins secreted by TH2 cells that stimulate B cells, T cells, macrophages and mast cells and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cells, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-4, and the stimulation of immune cells, such as B cells, T cells, macrophages and mast cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J</p>

187	HFCCQ50	1134	Activation of transcription through NFKB response element in immune cells (such as the Jurkat human T cell line).	<p>Clin Lab Anal 8(5):277-283 (1994); Yssel et al., Res Immunol 144(8):610-616 (1993); Bagley et al., Nat Immunol 1(3):257-261 (2000); and van der Graaff et al., Rheumatology (Oxford) 38(3):214-220 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburu et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>
187	HFCCQ50	1134	Activation of transcription through GAS response element in immune cells (such as monocytes).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include</p>



189	HFFAD59	1136	Regulation of transcription via DMEF1 response element in adipocytes and pre-adipocytes	<p>assays disclosed in: Gustafson KS, et al., J Biol Chem, 271(33):20035-20046 (1996); Eilers A, et al., Immunobiology, 193(2-4):328-333 (1995); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Mätkäinen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary immune cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary immune cells that may be used according to these assays include the U937 cell line, which is a monocytic cell line.</p> <p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1998); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p>
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189	HFFAD59	1136	Activation of transcription through API response element in immune cells (such as T-cells).	Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
189	HFFAD59	1136	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
190	HFFAL36	1137	Activation of transcription through API response element in immune cells (such as T-cells).	Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response

190	HFFAL36	1137	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
191	HFGAD82	1138	Activation of transcription through API response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and</p>

191	HFGAD82	1138	Stimulation of insulin secretion from pancreatic beta cells.	<p>Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line, which is an IL-2 dependent suspension culture cell line that also responds to IL-4.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., Am J Physiol, 277(4 Pt 2):R959-66 (1999); Li, M., et al., Endocrinology, 138(9):3735-40 (1997); Kim, K.H., et al., FEBS Lett, 377(2):237-9 (1995); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p>
192	HFIIZ70	1139	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog</p>

193	HFKE18	1140	Regulation of apoptosis of immune cells (such as mast cells).	<p>Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E -antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly</p>
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193	HFKET18	1140	Activation of transcription through NFAT response in immune cells (such as T-cells).	<p>available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>
193	HFKET18	1140	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that</p>

194	HFKFG02	1141	Activation of Adipocyte ERK Signaling Pathway	<p>may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, <i>Exp Clin Endocrinol Diabetes</i> 107(2):126-132 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1988); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Rellahan et al., <i>J Biol Chem</i> 272(49):30806-30811 (1997); Chang et al., <i>Mol Cell Biol</i> 18(9):4986-4993 (1998); and Fraser et al., <i>Eur J Immunol</i> 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary</p>
195	HFOXBI3	1142	Activation of transcription through AP1 response element in immune cells (such as T-cells).	

196	HFPAC12	1143	Regulation of apoptosis of immune cells (such as mast cells).	<p>mouse T cells that may be used according to these assays include the HT2 cell line, which is an IL-2 dependent suspension culture cell line that also responds to IL-4.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
197	HFPAC071	1144	Production of IL-8 by immune cells (such as the human EOL-1 eosinophil cells)	<p>Assay that measures the production of the chemokine interleukin-8 (IL-8) from immune cells (such as the EOL-1 human eosinophil cell line) are well known in the art (for example, measurement of IL-8 production by FMAT) and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. IL8 is a strong immunomodulator and may have a potential proinflammatory role in immunological diseases and disorders (such as allergy and asthma).</p>
197	HFPAC071	1144	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation,</p>



197	HFP AO71	1144	<p>activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays measuring production of IL-8 are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8. For example, FMA T may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8 from endothelial cells (such as human umbilical vein endothelial cells (HUVEC)). HUVECs are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Endothelial cells play a pivotal role in the initiation and</p>
			<p>Production of IL-8 by endothelial cells (such as Human Umbilical Cord Endothelial Cells).</p>

198	HFPCX09	1145	Production of TNF alpha by dendritic cells	<p>perpetuation of inflammation and secretion of IL-8 may play an important role in recruitment and activation of immune cells such as neutrophils, macrophages, and lymphocytes.</p> <p>TNF<math>\alpha</math> F<math>\alpha</math>MT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
198	HFPCX09	1145	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention)</p>

198	HFPCX09	1145	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
199	HFPCX36	1146	Activation of transcription through	<p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of</p>

200	HFRAN90	1147	NFKB response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4 cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
200	HFRAN90	1147	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the</p>

201	HFTCU19	1148	Activation of transcription through NFKB response element in neuronal cells (such as SKNMC cells).	<p>contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of neuronal genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Gill JS, et al., <i>Neurobiol Dis</i>, 7(4):448-461 (2000); Tamatani M, et al., <i>J Biol Chem</i>, 274(13):8531-8538 (1999); Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Valle Blazquez et al., <i>Immunology</i> 90(3):455-460 (1997); Aramburau et al., <i>J Exp Med</i> 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Neuronal cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary neuronal cells that may be used according to these assays include the SKNMC neuronal cell line.</p>
202	HFTDL56	1149	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, <i>FASEB J</i>, 15(2):279-281 (2001); and, Miyamoto K, et al., <i>Am J Pathol</i>, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
203	HFTDZ36	1150	Protection from Endothelial Cell Apoptosis.	<p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to</p>

203	HFVDZ36	1150	Stimulation of insulin secretion from pancreatic beta cells.	<p>inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., Am J Physiol, 277(4 Pt 2):R959-66 (1999); Li, M., et al., Endocrinology, 138(9):3735-40 (1997); Kim, K.H., et al., FEBS Lett, 377(2):237-9 (1995); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p>
205	HFVGE32	1152	Activation of Endothelial Cell p38 or JNK Signaling	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including</p>

206	HFVIC62	1153	Pathway.	<p>antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Flavell et al., <i>Cold Spring Harb Symp Quant Biol</i> 64:563-571 (1999); Rodriguez-Palmero et al., <i>Eur J Immunol</i> 29(12):3914-3924 (1999); Zheng and Flavell, <i>Cell</i> 89(4):587-596 (1997); and Henderson et al., <i>Mol Cell Biol</i> 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line</p>
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206	HFVIC62	1153	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
207	HFXAM76	1154	Production of GM-CSF	<p>GM-CSF FMAF. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of</p>



208	HFXDI75	1155	<p>cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p> <p>Assays for the activation of transcription through the API response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test</p>
208	HFXDI75	1155	<p>Activation of transcription through API response element in immune cells (such as T-cells).</p> <p>Activation of transcription through CD28 response element in immune cells (such as T-cells).</p>

208	HFXDJ75	1155	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
209	HFXDN63	1156	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-</p>

210	HFXGT26	1157	Production of ICAM-1	<p>368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
211	HFXGV31	1158	Production of TNF alpha by dendritic cells	<p>TNFα FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these</p>

212	HFXHD88	1159	Upregulation of CD152 and activation of T cells	<p>assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveg et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
213	HFXHK73	1160	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or</p>

214	HFXKJ03	1161	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
215	HFXKT05	1162	Myoblast cell proliferation	<p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of</p>

216	HFXKY27	1163	<p>myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary</p>
216	HFXKY27	1163	<p>Activation of Adipocyte ERK Signaling Pathway</p>
216	HFXKY27	1163	<p>Activation of transcription through GAS response element in immune cells (such as T-cells).</p>

217	HGBFO79	1164	Production of ICAM-1	<p>assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include Aortic Smooth Muscle Cells (AOSMC), such as bovine AOSMC.</p>
217	HGBFO79	1164	Proliferation of immune cells (such as the HMC-1 human mast cell line)	<p>Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of eosinophil cells and cell lines. For example, the CellTiter-Glo6 Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Mast cells are found in connective and mucosal tissues throughout the body. Mast cell activation (via immunoglobulin E -antigen, promoted by T helper cell type 2 cytokines) is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell</p>

218	HGBHE57	1165	Upregulation of CD71 and activation of T cells	<p>tumor survival. Mast cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary mast cells that may be used according to these assays include HMC-1, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
219	HGBIB74	1166	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>



219	HGBIB74	1166	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
219	HGBIB74	1166	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J</p>

219	HGBIB74	1166	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
220	HGLAL82	1167	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used</p>

221	HHAAF20	1168	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p>
222	HHBCS39	1169	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent</p>

223	HHEAA08	1170	Activation of Adipocyte ERK Signaling Pathway	<p>mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
223	HHEAA08	1170	Production of RANTES	<p>RANTES FMAT. Assays for immunomodulatory proteins that induce chemotaxis of T cells, monocytes, and eosinophils are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as RANTES, and the induction of chemotactic responses in immune cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Cocchi et al., Science 270(5243):1811-1815 (1995); and Robinson et al., Clin Exp Immunol 101(3):398-407 (1995), the contents of each of which are herein</p>

223	HHEAA08	1170	Upregulation of CD152 and activation of T cells	<p>incorporated by reference in its entirety. Human immune cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in</p>
224	HHEMA59	1171	Activation of transcription through serum response element in immune cells (such as natural killer cells).	

225	HHEMA75	1172	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, bind to CREB transcription factor, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>
225	HHEMA75	1172	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346</p>

225	HHEMA75	1172	Activation of transcription through API response element in immune cells (such as T-cells).	<p>(1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the API response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p>
225	HHEMA75	1172	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are</p>

225	HHEMA75	1172	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
225	HHEMA75	1172	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>



225	HHEMA75	1172	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
225	HHEMA75	1172	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic</p>

226	HHEMM74	1173	Activation of transcription through cAMP response element in immune cells (such as T-cells).	activity. Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.
227	HHENQ22	1174	Production of IL-6	IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J

228	HHEPD24	1175	Production of TNF alpha by dendritic cells	<p>Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>TNF<math>\alpha</math> FMT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
228	HHEPD24	1175	Production of MIP1alpha	<p>MIP-1alpha FMT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-</p>

				<p>1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
228	HHEPD24	1175	Production of MCP-1	<p>MCP-1 F/MAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
228	HHEPD24	1175	Production of IL-6	<p>IL-6 F/MAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a</p>

229	HHEPM33	1176	<p>role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992);</p>
			<p>Activation of transcription through cAMP response element (CRE) in pre-adipocytes.</p>

229	HHEPM33	1176	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
229	HHEPM33	1176	Activation of transcription through NFAT response element in immune	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and</p>

229	HHEPM33	1176	cells (such as mast cells).	<p>may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curriel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
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229	HHEPM33	1176	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
229	HHEPM33	1176	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
229	HHEPM33	1176	Activation of	Assays for the activation of transcription through the Serum Response Element (SRE)



			transcription through serum response element in immune cells (such as natural killer cells).	are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
230	HHEPT60	1177	Activation of transcription through NFKB response element in immune cells (such as natural killer cells).	Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al., Immunology 90(3):455-460 (1997); Aramburu et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
231	HHEPU04	1178	Production of TNF alpha by dendritic cells	TNFa FMAAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in

<p>the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFa), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al.,</p>
	Production of IL-6
HHEPU04	1178
231	

232	HHFBY53	1179	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>"Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>IFN<math>\gamma</math> gamma FMAAT. IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate</p>
233	HHFEC49	1180	Production of IFN $\gamma$ gamma using a T cells	<p>IFN<math>\gamma</math> gamma FMAAT. IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate</p>

234	HHFFJ48	1181	<p>humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the NF<math>\kappa</math>B response element are well-known in the art and may be used or routinely modified to assess the ability of</p>
235	HHFGR93	1182	<p>Activation of Adipocyte PI3 Kinase Signalling Pathway</p> <p>Activation of transcription through</p>

235	HHFGR93	1182	NFKB response element in epithelial cells (such as HELA cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of epithelial genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Kaltschmidt B, et al., Oncogene, 18(21):3213-3225 (1999); Beetz A, et al., Int J Radiat Biol, 76(11):1443-1453 (2000); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Epithelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary epithelial cells that may be used according to these assays include the HELA cell line.</p> <p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux in immune cells (such as monocytes) include assays disclosed in: Chan, CC, et al., J Pharmacol Exp Ther, 269(3):891-896 (1994); Andersson, K, et al., Cytokine, 12(12):1784-1787 (2000); Scully, SP, et al., J Clin Invest, 74(2) 589-599 (1984); and, Sullivan, E, et al., Methods Mol Biol, 114:125-133 (1999), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the THP-1 monocyte cell line.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for</p>
236	HHFJ59	1183	Activation of transcription through cAMP response element in immune cells (such as T-cells).	

236	HHFHU59	1183	Upregulation of HLA-DR and activation of T cells	<p>transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>HLA-DR FMAT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases (e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
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236	HHFHJ59	1183	Upregulation of CD71 and activation of T cells	<p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
236	HHFHJ59	1183	Upregulation of CD69 and activation of T cells	<p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-</p>

236	HHFHJ59	1183	Production of IL-10 and activation of T-cells.	<p>78 (200); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p>
237	HHFHR32	1184	Production of IL-6	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate</p>



238	HHFOJ29	1185	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p>
239	HHGBO91	1186	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote</p>

240	HHGCM76	1187	Stimulation of insulin secretion from pancreatic beta cells.	<p>or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, <i>Exp Clin Endocrinol Diabetes</i> 107(2):126-132 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., <i>Am J Physiol</i>, 277(4 Pt 2):R959-66 (1999); Li, M., et al., <i>Endocrinology</i>, 138(9):3735-40 (1997); Kim, K.H., et al., <i>FEBS Lett</i>, 377(2):237-9 (1995); and, Miraglia S et al., <i>Journal of Biomolecular Screening</i>, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. <i>Endocrinology</i> 1992_130:167.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be</p>
240	HHGCM76	1187	Production of ICAM-1	

241	HHGCQ54	1188	Activation of Adipocyte ERK Signaling Pathway	<p>used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>
242	HHGDF16	1189	Activation of transcription through serum response element in immune cells (such as T-cells).	

242	HHGDF16	1189	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p>
243	HHGDW43	1190	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the</p>

				<p>contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p>
243	HHGDW43	1190	Production of IL-10 and activation of T-cells.	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p>
244	HHPDX20	1191	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al.,</p>

244	HHPDX20	1191	Endothelial Cell Apoptosis	<p>Gene 66:1-10 (1998); Cullen and Malim, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klermm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
245	HHPGO40	1192	Proliferation of immune cells (such as the HMC-1 human mast cell line)	<p>Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of eosinophil cells and cell lines. For example, the CellTiter-Glo<sup>®</sup> Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of</p>

245	HHPGO40	1192	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>metabolically active cells. Mast cells are found in connective and mucosal tissues throughout the body. Mast cell activation (via immunoglobulin E -antigen, promoted by T helper cell type 2 cytokines) is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Mast cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary mast cells that may be used according to these assays include HMC-1, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or</p>
245	HHPGO40	1192	Upregulation of CD69 and activation of T cells	<p>metabolically active cells. Mast cells are found in connective and mucosal tissues throughout the body. Mast cell activation (via immunoglobulin E -antigen, promoted by T helper cell type 2 cytokines) is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Mast cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary mast cells that may be used according to these assays include HMC-1, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or</p>

246	HHPTJ65	1193	Regulation of apoptosis of immune cells (such as mast cells).	<p>antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afeira et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
247	HHSDX28	1194	Activation of transcription through serum response element in immune cells (such	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes</p>



247	HHSDX28	1194	as T-cells).	involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
247	HHSDX28	1194	Production of TNF alpha by dendritic cells	TNF $\alpha$ FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF $\alpha$ ), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
247	HHSDX28	1194	Activation of transcription through GATA-3 response	This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the

			<p>GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
248	HILCF66	1195	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in</p>

250	HJACG30	1197	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., Am J Physiol, 277(4 Pt 2):R959-66 (1999); Li, M., et al., Endocrinology, 138(9):3735-40 (1997); Kim, K.H., et al., FEBS Lett, 377(2):237-9 (1995); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible</p>
250	HJACG30	1197	Stimulation of insulin secretion from pancreatic beta cells.	

251	HJBCU04	1198	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
251	HJBCU04	1198	Production of IL-4	<p>IL-4 FMA T. Assays for immunomodulatory proteins secreted by TH2 cells that stimulate B cells, T cells, macrophages and mast cells and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cells, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-4, and the stimulation of immune cells, such as B cells, T cells, macrophages and mast cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):277-283 (1994); Yssel et al., Res Immunol 144(8):610-616 (1993); Bagley et al., Nat Immunol 1(3):257-261 (2000); and van der Graaff et al., Rheumatology (Oxford) 38(3):214-220 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to</p>

252	HJBCY35	1199	Regulation of viability and proliferation of pancreatic beta cells.	<p>these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Friedrichsen BN, et al., <i>Mol Endocrinol</i>, 15(1):136-48 (2001); Huotari MA, et al., <i>Endocrinology</i>, 139(4):1494-9 (1998); Hugl SR, et al., <i>J Biol Chem</i> 1998 Jul 10;273(28):17771-9 (1998), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. <i>Endocrinology</i> 1992 130:167.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Nikoulina et al., <i>Diabetes</i> 49(2):263-271 (2000); and Schreyer et al., <i>Diabetes</i> 48(8):1662-1666 (1999), the contents of each of which are</p>
252	HJBCY35	1199	Activation of Skeletal Muscle Cell PI3 Kinase Signalling Pathway	

253	HJMB118	1200	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
254	HJMBM38	1201	Endothelial Cell Apoptosis	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through</p>

255	HJMBT65	1202	Production of MIP1alpha	<p>commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>MIP-1alpha FMAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, <i>J R Coll Surg Ednb</i> 45(1):9-19 (2001); Drakes et al., <i>Transp Immunol</i> 8(1):17-29 (2000); Verhasselt et al., <i>J Immunol</i> 158:2919-2925 (1997); and Nardelli et al., <i>J Leukoc Biol</i> 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be</p>
255	HJMBT65	1202	Upregulation of CD71 and activation of T cells	

256	HJMBW30	1203	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
257	HIPAD75	1204	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al.,</p>



257	HJPAD75	1204	Production of IL-6	<p>Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the regulation of transcription through the FAS promoter element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the</p>
257	HJPAD75	1204	Regulation of transcription through the FAS promoter	

258	HJPCP42	1205	Protection from Endothelial Cell Apoptosis.	<p>invention) to activate the FAS promoter element in a reporter construct and to regulate transcription of FAS, a key enzyme for lipogenesis. FAS promoter is regulated by many transcription factors including SREBP. Insulin increases FAS gene transcription in livers of diabetic mice. This stimulation of transcription is also somewhat glucose dependent. Exemplary assays that may be used or routinely modified to test for FAS promoter element activity (in hepatocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Xiong, S., et al., <i>Proc Natl Acad Sci U.S.A.</i>, 97(8):3948-53 (2000); Roder, K., et al., <i>Eur J Biochem</i>, 260(3):743-51 (1999); Oskouian B, et al., <i>Biochem J</i>, 317 ( Pt 1):257-65 (1996); Berger, et al., <i>Gene</i> 66:1-10 (1988); and, Cullen, B., et al., <i>Methods in Enzymol.</i> 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays, such as H4IIE cells, are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays include rat liver hepatoma cell line(s) inducible with glucocorticoids, insulin, or cAMP derivatives.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., <i>Cardiovasc Res</i> 45(3): 788-794 (2000); Messmer et al., <i>Br J Pharmacol</i> 127(7): 1633-1640 (1999); and <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
259	HKAAE44	1206	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152</p>

260	HKAAH36	1207	Production of MCP-1	<p>may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveeg et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated</p>
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				by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
260	HKA AH36	1207	Production of IL-6	IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
261	HKA AK02	1208	Production of MCP-1	MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the

261	HKAAK02	1208	Production of IL-6	<p>production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Satthaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when</p>
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262	HKABI84	1209	Endothelial Cell Apoptosis	<p>activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (BAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
262	HKABI84	1209	Activation of transcription through NFAT response in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yessen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>

262	HKABI84	1209	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
263	HKABZ65	1210	Production of IL-6	<p>IL-6 FMT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J</p>

263	HKABZ65	1210	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
263	HKABZ65	1210	Regulation of apoptosis in pancreatic beta cells.	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Apoptosis in pancreatic beta is associated with induction and progression of diabetes. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Loweth, AC, et al., <i>FEBS Lett</i>, 400(3):285-8 (1997); Saini, KS, et al., <i>Biochem Mol Biol Int</i>, 39(6):1229-36 (1996); Krauthelm, A., et al., <i>Br J Pharmacol</i>, 129(4):687-94 (2000); Chandra J, et al., <i>Diabetes</i>, 50 Suppl 1:S44-7</p>



264	HKACB56	1211	Myoblast cell proliferation	<p>(2001); Suk K, et al., J Immunol, 166(7):4481-9 (2001); Tejedo J, et al., FEBS Lett, 459(2):238-43 (1999); Zhang, S., et al., FEBS Lett, 455(3):315-20 (1999); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include RIN-m. RIN-m is a rat adherent pancreatic beta cell insulinoma cell line derived from a radiation induced transplantable rat islet cell tumor. The cells produce and secrete islet polypeptide hormones, and produce insulin, somatostatin, and possibly glucagon. ATTC: #CRL-2057 Chick et al. Proc. Natl. Acad. Sci. 1977 74:628; AF et al. Proc. Natl. Acad. Sci. 1980 77:3519.</p> <p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
264	HKACB56	1211	Production of IL-5	<p>IL-5 FMA T. Assays for immunomodulatory proteins secreted by TH2 cells, mast cells, basophils, and eosinophils that stimulate eosinophil function and B cell Ig production and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of</p>

264	HKACB56	1211	<p>the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cell function, modulate B cell Ig production, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-5, and the stimulation of eosinophil function and B cell Ig production. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ohshima et al., Blood 92(9):3338-3345 (1998); Jung et al., Eur J Immunol 25(8):2413-2416 (1995); Mori et al., J Allergy Clin Immunol 106(1 Pt 2):558-564 (2000); and Koning et al., Cytokine 9(6):427-436 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUEVC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or</p>
264	HKACB56	1211	<p>Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUEVC))</p>
264	HKACB56	1211	<p>Activation of Endothelial Cell p38 or</p>

264	HKACB56	1211	JNK Signaling Pathway.	<p>routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its</p>
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265	HKACD58	1212	<p>entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., <i>J Biol Chem</i>, 273(23):14285-92 (1998); Mora, S., et al., <i>J Biol Chem</i>, 275(21):16323-8 (2000); Liu, M.L., et al., <i>J Biol Chem</i>, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", <i>J Biol Chem</i>, 2000 Aug 4;275(31):23666-73; Berger, et al., <i>Gene</i> 66:1-10 (1988); and, Cullen, B., et al., <i>Methods in Enzymol.</i> 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes in immune cells (such</p>
265	HKACD58	1212	<p>Activation of transcription through serum response element in immune cells (such</p>

266	HKACH44	1213	as natural killer cells).	involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
			Activation of Endothelial Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.
267	HKACM93	1214	Activation of transcription through GAS response element in immune cells (such	Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate gene expression (commonly via

			as eosinophils).	<p>STAT transcription factors) involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995); the contents of each of which are herein incorporated by reference in its entirety. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate or inhibit activation of immune cells include assays disclosed and/or cited in: Mayumi M., "EoL-1, a human eosinophilic cell line" Leuk Lymphoma; Jun;7(3):243-50 (1992); Bhattacharya S, "Granulocyte macrophage colony-stimulating factor and interleukin-5 activate STAT5 and induce CIS1 mRNA in human peripheral blood eosinophils" Am J Respir Cell Mol Biol; Mar;24(3):312-6 (2001); and, Du J, et al., "Engagement of the CrkL adapter in interleukin-5 signaling in eosinophils" J Biol Chem; Oct 20;275(42):33167-75 (2000); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are a type of immune cell important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Increases in GAS mediated transcription in eosinophils is typically a result of STAT activation, normally a direct consequence of interleukin or other cytokine receptor stimulation (e.g. IL3, IL5 or GM-CSF).</p>
267	HKACM93	1214	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346</p>

267	HKACM93	1214	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>(1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4 cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
268	HKAE180	1215	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK</p>

269	HKAEV06	1216	Regulation of viability and proliferation of pancreatic beta cells.	cells. Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ohtani KI, et al., Endocrinology, 139(1):172-8 (1998); Krauthaim A, et al, Exp Clin Endocrinol Diabetes, 107 (1):29-34 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.
269	HKAEV06	1216	Activation of transcription through AP1 response element in immune cells (such as T-cells).	Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T



270	HKAFK41	1217	Production of ICAM-1	<p>cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., <i>Atherosclerosis</i>, 149(1):99-110 (2000); Panettieri RA Jr, et al., <i>J Immunol</i>, 154(5):2358-2365 (1995); and, Grunstein MM, et al., <i>Am J Physiol Lung Cell Mol Physiol</i>, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include Aortic Smooth Muscle Cells (AOSMC); such as bovine AOSMC.</p>
270	HKAFK41	1217	Production of IL-6	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., <i>J Immunol</i> 158:2919-2925 (1997), the contents of each of which are herein incorporated</p>

271	HKAFT66	1218	Myoblast cell proliferation	<p>by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" <i>Dev Growth Differ</i> Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" <i>J Endocrinol Mar;144(3):539-53</i> (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" <i>J Cell Physiol Jun;143(3):524-8</i> (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
271	HKAFT66	1218	Insulin Secretion	<p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., <i>Endocr J</i>, 47(3):261-9 (2000); Salapatek, A.M., et al., <i>Mol Endocrinol</i>, 13(8):1305-17 (1999); Filipsson, K., et al., <i>Ann N Y Acad Sci</i>, 865:441-4 (1998); Olson, L.K., et al., <i>J</i></p>

271	HKAFT66	1218	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>Biol Chem, 271(28):16544-52 (1996); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATCC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
271	HKAFT66	1218	Activation of transcription through	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and</p>

			NFAT response element in immune cells (such as mast cells).	chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.
272	HKDBF34	1219	Activation of transcription through NFkB response element in immune cells (such as T-cells).	Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).
273	HKGAT94	1220	Activation of Natural	Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal

274	HKGCO27	1221	Killer Cell ERK Signaling Pathway.	<p>transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p>
			Production of GM-CSF	<p>GM-CSF FMAT. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be</p>

275	HKISB57	1222	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art</p>
275	HKISB57	1222	Regulation of	

276	HKMLK53	transcription of Malic Enzyme in adipocytes	<p>and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MEEd identified as putative PPAR response elements. ME promoter may also respond to API1 and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeper, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p>
1223	HKMLK53	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including</p>

277	HKMLM11	1224	Myoblast cell proliferation	<p>antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
278	HKMLP68	1225	Activation of transcription through serum response element in immune cells (such	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes</p>



279	HKMMD13	1226	as T-cells).	<p>involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999);</p>
280	HKMND01	1227	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	

282	HL2AG57	1229	Production of IL-6	<p>Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>IL-6 FMT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
283	HLCND09	1230	Upregulation of CD152 and activation of T	<p>CD152 FMT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has</p>

284	HLD BE54	1231	cells	<p>been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., <i>Immunol Cell Biol</i> 77(1):1-10 (1999); Oostervegal et al., <i>Curr Opin Immunol</i> 11(3):294-300 (1999); and Saito T, <i>Curr Opin Immunol</i> 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., <i>Cardiovasc Res</i> 45(3): 788-794 (2000); Messmer et al., <i>Br J Pharmacol</i> 127(7): 1633-1640 (1999); and <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in</p>
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285	HLDBX13	1232	Production of TNF alpha by dendritic cells	<p>functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>TNF<math>\alpha</math> FMT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
285	HLDBX13	1232	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500</p>

286	HLDNA86	1233	Activation of Adipocyte ERK Signaling Pathway	<p>(1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
287	HLDON23	1234	Regulation of transcription through the PEPCK promoter in hepatocytes	<p>Assays for the regulation of transcription through the PEPCK promoter are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the PEPCK promoter in a reporter construct and regulate liver gluconeogenesis. Exemplary assays for regulation of transcription through the PEPCK promoter that may be used or routinely modified to test for PEPCK promoter activity (in hepatocytes) of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al.,</p>

287	HLDON23	1234	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>Proc Natl Acad Sci USA 85:6342-6346 (1988); Lochhead et al., Diabetes 49(6):896-903 (2000); and Yeagley et al., J Biol Chem 275(23):17814-17820 (2000), the contents of each of which is herein incorporated by reference in its entirety. Hepatocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary liver hepatoma cells that may be used according to these assays include H4IIE cells, which contain a tyrosine amino transferase that is inducible with glucocorticoids, insulin, or cAMP derivatives.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
287	HLDON23	1234	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
287	HLDON23	1234	Production of IL-10 and activation of T-cells.	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be</p>

288	HLDOW79	1235	<p>used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
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288	HLDOW79	1235	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
288	HLDOW79	1235	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through</p>



288	HL.DOW79	1235	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 3(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
288	HL.DOW79	1235	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT</p>

288	HLDOW79	1235	Activation of transcription through NFKB response element in immune cells (such as T-cells).	cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.
289	HLDQC46	1236	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
290	HLDQR62	1237	Regulation of viability and proliferation of pancreatic beta cells.	Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell

290	HLDQR62	1237	<p>Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Friedrichsen BN, et al., Mol Endocrinol, 15(1):136-48 (2001); Huotari MA, et al., Endocrinology, 139(4):1494-9 (1998); Hugl SR, et al., J Biol Chem 1998 Jul 10;273(28):17771-9 (1998), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
291	HLDQU79	1238	<p>Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to</p>

291	HLDQU79	1238	<p>regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Friedrichsen BN, et al., Mol Endocrinol, 15(1):136-48 (2001); Huotari MA, et al., Endocrinology, 139(4):1494-9 (1998); Hugl SR, et al., J Biol Chem 1998 Jul 10;273(28):17771-9 (1998), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
292	HLDRM43	1239	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell</p>

292	HLD RM43	1239	<p>proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 3(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
292	HLD RM43	1239	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively</p>

292	HLDRM43	1239	<p>on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
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293	HLD RP33	1240	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
294	HLHFP03	1241	Activation of T-Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
295	HLHFR58	1242	Production of TNF alpha by dendritic cells	TNF $\alpha$ FMTAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of

295	HLHFR58	1242	Production of RANTES	<p>the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFa), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1198); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
296	HLIBD68	1243	Production of TNF	<p>RANTES FMAT. Assays for immunomodulatory proteins that induce chemotaxis of T cells, monocytes, and eosinophils are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as RANTES, and the induction of chemotactic responses in immune cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Cocchi et al., Science 270(5243):1811-1815 (1995); and Robinson et al., Clin Exp Immunol 101(3):398-407 (1995), the contents of each of which are herein incorporated by reference in its entirety. Human immune cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art.</p> <p>TNFa FMAT. Assays for immunomodulatory proteins produced by activated</p>



			alpha by dendritic cells	macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF $\alpha$ ), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
296	HLIBD68	1243	Production of MIP1alpha	MIP-1alpha FMAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1 $\alpha$ ), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925

296	HLJBD68	1243	Production of IL-6	<p>(1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by</p>
296	HLJBD68	1243	Stimulation of insulin secretion from pancreatic beta cells.	

297	HLICQ90	1244	<p>certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., <i>Am J Physiol</i>, 277(4 Pt 2):R959-66 (1999); Li, M., et al., <i>Endocrinology</i>, 138(9):3735-40 (1997); Kim, K.H., et al., <i>FEBS Lett</i>, 377(2):237-9 (1995); and, Miraglia S et al., <i>Journal of Biomolecular Screening</i>, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. <i>Endocrinology</i> 1992 130:167.</p>
297	HLICQ90	1244	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); and Black et al., <i>Virus Genes</i> 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
297	HLICQ90	1244	<p>TNF<math>\alpha</math> FMTAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary</p>

297	HLICQ90	1244	<p>assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. For example, the FLPR assay may be used to measure influx of calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Satin LS, et al., Endocrinology, 136(10):4589-601 (1995); Mogami H, et al., Endocrinology, 136(7):2960-6 (1995); Richardson SB, et al., Biochem J, 288 ( Pt 3):847-51 (1992); and, Meats, JE, et al., Cell Calcium 1989 Nov-Dec;10(8):535-41 (1989), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and</p>
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297	HLICQ90	1244	Stimulation of insulin secretion from pancreatic beta cells.	<p>glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and downregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., Am J Physiol, 277(4 Pt 2):R959-66 (1999); Li, M., et al., Endocrinology, 138(9):3735-40 (1997); Kim, K.H., et al., FEBS Lett, 377(2):237-9 (1995); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm. Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety.</p>
298	HLMBO76	1245	Activation of transcription through serum response element in immune cells (such as natural killer cells).	

299	HLQBE09	1246	Production of IL-8 by immune cells (such as the human EOL-1 eosinophil cells)	<p>T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assay that measures the production of the chemokine interleukin-8 (IL-8) from immune cells (such as the EOL-1 human eosinophil cell line) are well known in the art (for example, measurement of IL-8 production by FMAT) and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. IL8 is a strong immunomodulator and may have a potential proinflammatory role in immunological diseases and disorders (such as allergy and asthma).</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
299	HLQBE09	1246	Upregulation of CD71 and activation of T cells	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal</p>
300	HLQDR48	1247	Activation of	

300	HLQDR48	1247	Adipocyte ERK Signaling Pathway	transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.
300	HLQDR48	1247	Production of TNF alpha by dendritic cells	TNF $\alpha$ FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF $\alpha$ ), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these

300	HLQDR48	1247	Production of MCP-1	<p>assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>MCP-1 F/MAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
301	HLTAU74	1248	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Relahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are</p>



301	HLTAU74	1248	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p>
302	HLTDV50	1249	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
303	HLTEI25	1250	Activation of transcription through GATA-3 response element in immune	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely</p>

303	HLTE125	1250	cells (such as mast cells).	<p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
			Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available</p>

304	HL TEJ06	1251	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>(e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>IFNgamma FMAT. IFNγ plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNγ promotes TH1 and inhibits TH2; promotes IgG2a and inhibits IgE; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity.</p> <p>Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNγ), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann</p>
305	HL TFA64	1252	Production of IFNgamma using Natural Killer cells	

306	HLTHG37	1253	<p>Activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MED identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test</p>
307	HLWAA17	1254	<p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MED identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test</p>

				<p>for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeter, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p>
307	HLWAA17	1254	Production of ICAM-1	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
308	HLWAA88	1255	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly</p>

				available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.
309	HLWAD77	1256	Activation of transcription through the EGR (Early Growth Response) element in immune cells (such as B-cells).	Assays for the activation of transcription through the EGR response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate EGR transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the EGR response element that may be used or routinely modified to test EGR response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Richards JD, et al., J Immunol, 166(6):3855-3864 (2001); Dinkel, A, et al., J Exp Med, 188(12):2215-2224 (1998); and, Newton, JS, et al., Eur J Immunol 1996 Apr;26(4):811-816 (1996), the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary epithelial cells that may be used according to these assays include the Raji cell line.
310	HLWAE11	1257	Activation of transcription through serum response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
310	HJWAE11	1257	Activation of	Assays for the activation of transcription through the NFkB response element are well-

			transcription through NFKB response element in immune cells (such as natural killer cells).	known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
310	HLWAE11	1257	Calcium flux in immune cells (such as monocytes)	Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux in immune cells (such as monocytes) include assays disclosed in: Chan, CC, et al., J Pharmacol Exp Ther, 269(3):891-896 (1994); Andersson, K, et al., Cytokine, 12(12):1784-1787 (2000); Scully, SP, et al., J Clin Invest, 74(2) 589-599 (1984); and, Sullivan, E, et al., Methods Mol Biol, 114:125-133 (1999), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the THP-1 monocyte cell line.
311	HLWAO22	1258	Production of MCP-1	MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the

311	HLWAO22	1258	Activation of transcription through NFAT response in immune cells (such as T-cells).	<p>invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, <i>J R Coll Surg Ednb</i> 45(1):9-19 (2001); and Verhasselt et al., <i>J Immunol</i> 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Serfling et al., <i>Biochim Biophys Acta</i> 1498(1):1-18 (2000); De Boer et al., <i>Int J Biochem Cell Biol</i> 31(10):1221-1236 (1999); Fraser et al., <i>Eur J Immunol</i> 29(3):838-844 (1999); and Yeseen et al., <i>J Biol Chem</i> 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>
311	HLWAO22	1258	Activation of	Assays for the activation of transcription through the Serum Response Element (SRE)



<p>are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>	<p>MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
transcription through serum response element in immune cells (such as natural killer cells).	Production of MCP-1
312	HLWAY54 1259

312	HLWAY54	1259	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p>
312	HLWAY54	1259	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely</p>

313	HLWBH18	1260	<p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMA-T may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
313	HLWBH18	1260	<p>Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))</p> <p>Activation of Endothelial Cell p38 or JNK Signaling Pathway.</p>

314	HLWB163	1261	Upregulation of CD71 and activation of T cells	<p>proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
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315	HLWBK05	1262	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
316	HLWBY76	1263	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
316	HLWBY76	1263	Upregulation of HLA-DR and activation of T	<p>HLA-DR F/MAT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases</p>

			cells	<p>(e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
316	HLWB76	1263	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include,</p>

317	HLWCF05	1264	Activation of Adipocyte PI3 Kinase Signalling Pathway	<p>for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveeg et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 Kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et</p>
317	HLWCF05	1264	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	

317	HLWCF05	1264	<p>al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" <i>Clin Exp Immunol</i>; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" <i>J Exp Med</i>; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" <i>J Allergy Clin Immunol</i>; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p>
			<p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1988); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Rellahan et al., <i>J Biol Chem</i> 272(49):30806-30811 (1997); Chang et al., <i>Mol Cell Biol</i> 18(9):4986-4993 (1998); and Fraser et al., <i>Eur J Immunol</i> 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays.</p>



317	HLWCF05	1264	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 3(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
317	HLWCF05	1264	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>

317	HLWCF05	1264	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
318	HLYAC95	1265	Production of IFNgamma using a T cells	<p>IFNgamma FMAT. IFNg plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNg promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNg), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by</p>

318	HL YAC95	1265	Stimulation of insulin secretion from pancreatic beta cells.	<p>reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FIMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., <i>Am J Physiol</i>, 277(4 Pt 2):R959-66 (1999); Li, M., et al., <i>Endocrinology</i>, 138(9):3735-40 (1997); Kim, K.H., et al., <i>FEBS Lett</i>, 377(2):237-9 (1995); and, Miraglia S et al., <i>Journal of Biomolecular Screening</i>, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. <i>Endocrinology</i> 1992 130:167.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in</i></p>
319	HL YAF80	1266	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	

320	HL YAN59	1267	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
320	HL YAN59	1267	Upregulation of HLA-DR and activation of T cells	<p>HLA-DR FMAT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases (e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular</p>

320	HL YAN59	1267	Upregulation of CD152 and activation of T cells	<p>Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal</p>
321	HL YAP91	1268	Activation of	

322	HLYAZ61	1269	Adipocyte ERK Signaling Pathway	<p>transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
322	HLYAZ61	1269	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal</p>

323	HL YBD32	1270	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the HT2 cell line, which is an IL-2 dependent suspension culture cell line that also responds to IL-4.</p>
324	HL YES38	1271	Activation of Adipocyte PI3 Kinase Signalling Pathway	<p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110</p>

325	HMADS41	1272	Protection from Endothelial Cell Apoptosis.	<p>(1998); Nikoulina et al., <i>Diabetes</i> 49(2):263-271 (2000); and Schreyer et al., <i>Diabetes</i> 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., <i>Cardiovasc Res</i> 45(3): 788-794 (2000); Messmer et al., <i>Br J Pharmacol</i> 127(7): 1633-1640 (1999); and <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
325	HMADS41	1272	Activation of Hepatocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by</p>



325	HMADS41	1272	Regulation of apoptosis of immune cells (such as mast cells).	<p>reference in its entirety. Rat liver hepatoma cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat liver hepatoma cells that may be used according to these assays include H4IIE cells, which are known to respond to glucocorticoids, insulin, or cAMP derivatives.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E -antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., <i>J Biol Chem</i>, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., <i>J Exp Med</i>, 192(8):1093-1103 (2000); Lee et al., <i>FEBS Lett</i> 485(2-3): 122-126 (2000); Nor et al., <i>J Vasc Res</i> 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
326	HMADU73	1273	Production of TNF alpha by dendritic cells	<p>TNFα FMT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>

326	HMADU73	1273	Production of IL-6	<p>disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 F/MAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for production of IL-10 and activation of T-cells are well known in the art and</p>
326	HMADU73	1273	Production of IL-10	

327	HMAMI15	1274	and activation of T-cells.	<p>may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. For example, the FLPR assay may be used to measure influx of calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Satin LS, et al., Endocrinology, 136(10):4589-601 (1995); Mogami H, et al., Endocrinology, 136(7):2960-6 (1995); Richardson SB, et al., Biochem J, 288 ( Pt 3):847-51 (1992); and, Meats, JE, et al., Cell Calcium 1989 Nov-Dec;10(8):535-41 (1989), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HITTT15 Cells. HITTT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and</p>
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327	HMAMI15	1274	Upregulation of CD152 and activation of T cells	<p>glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveeg et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and</p>
328	HMDAE65	1275	Production of IL-6	

329	HMDAM24	1276	Protection from Endothelial Cell Apoptosis.	<p>may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1</p>
330	HMDAQ29	1277	Production of ICAM-1	

330	HMDAQ29	1277	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include Aortic Smooth Muscle Cells (AOSMC); such as bovine AOSMC.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346</p>
331	HMEAI48	1278	Activation of transcription through serum response element in immune cells (such as T-cells).	

332	HMECK83	1279	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>(1988); and Black et al., <i>Virus Genes</i> 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Serfling et al., <i>Biochim Biophys Acta</i> 1498(1):1-18 (2000); De Boer et al., <i>Int J Biochem Cell Biol</i> 31(10):1221-1236 (1999); Fraser et al., <i>Eur J Immunol</i> 29(3):838-844 (1999); and Yeseen et al., <i>J Biol Chem</i> 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
333	HMEET96	1280	Production of IL-6	<p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and</p>

333	HMEET96	1280	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVEC), and are available from commercial sources. The expression of ICAM (CD54),<sup>a</sup> integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panetier RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p>
334	HMIAL37	1281	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include</p>



				<p>the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p>
334	HMIAL37	1281	Production of IL-10 and activation of T-cells.	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that</p>

335	HMIAP86	1282	Production of TNF alpha by dendritic cells	<p>secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>TNF<math>\alpha</math> F<math>\alpha</math> MAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
335	HMIAP86	1282	Production of MIP1alpha	<p>MIP-1alpha F<math>\alpha</math> MAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1<math>\alpha</math>), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of</p>

				<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
335	HMIAP86	1282	Production of MCP-1	<p>MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
335	HMIAP86	1282	Production of IL-8 by immune cells (such as the human EOL-1 eosinophil cells)	<p>Assay that measures the production of the chemokine interleukin-8 (IL-8) from immune cells (such as the EOL-1 human eosinophil cell line) are well known in the art (for example, measurement of IL-8 production by FMAT) and may be used or routinely modified to assess the ability of polypeptides of the invention (including</p>

335	HMIAP86	1282	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>antibodies and agonists or antagonists of the invention) to promote or inhibit. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. IL8 is a strong immunomodulator and may have a potential proinflammatory role in immunological diseases and disorders (such as allergy and asthma).</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
335	HMIAP86	1282	Production of IL-8 by endothelial cells (such as Human Umbilical Cord Endothelial Cells).	<p>Assays measuring production of IL-8 are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8. For example, FMAT may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8 from endothelial cells (such as human umbilical vein endothelial cells (HUVEC)). HUVECs are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Endothelial cells play a pivotal role in the initiation and perpetuation of inflammation and secretion of IL-8 may play an important role in recruitment and activation of immune cells such as neutrophils, macrophages, and lymphocytes.</p>
336	HMKCG09	1283	Regulation of viability or proliferation of immune cells (such as	<p>Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or</p>

336	HMKCG09	1283	human eosinophil EOL-1 cells).	<p>antagonists of the invention) to regulate viability and proliferation of eosinophil cells and cell lines. For example, the CellTiter-Glo Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA ) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eosinophil cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary eosinophil cells that may be used according to these assays include EOL-1 Cells.</p> <p>IFNgamma FMAT. IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
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336	HMKCG09	1283	Production of IL-10 and activation of T-cells.	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p>
337	HMMAH60	1284	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>Assays for production of IL-10 and activation of T-cells are well known in the art and</p>
337	HMMAH60	1284	Production of IL-10	Assays for production of IL-10 and activation of T-cells are well known in the art and

338	HMQDF12	1285	and activation of T-cells.	<p>may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit production of IL-10 and/or activation of T-cells. Exemplary assays that may be used or routinely modified to assess the ability of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) to modulate IL-10 production and/or T-cell proliferation include, for example, assays such as disclosed and/or cited in: Robinson, DS, et al., "Th-2 cytokines in allergic disease" Br Med Bull; 56 (4): 956-968 (2000), and Cohn, et al., "T-helper type 2 cell-directed therapy for asthma" Pharmacology &amp; Therapeutics; 88: 187-196 (2000); the contents of each of which are herein incorporated by reference in their entirety. Exemplary cells that may be used according to these assays include Th2 cells. IL10 secreted from Th2 cells may be measured as a marker of Th2 cell activation. Th2 cells are a class of T cells that secrete IL4, IL10, IL13, IL5 and IL6. Factors that induce differentiation and activation of Th2 cells play a major role in the initiation and pathogenesis of allergy and asthma. Primary T helper 2 cells are generated via in vitro culture under Th2 polarizing conditions using peripheral blood lymphocytes isolated from cord blood.</p>
			Production of TNF alpha by dendritic cells	<p>TNFα FMAAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art.</p>

338	HMQDF12	1285	Production of MIP1alpha	Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities. MIP-1alpha FMA.T. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
339	HMSBX80	1286	Upregulation of CD71 and activation of T cells	CD71 FMA.T. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include,



340	HMSFS21	1287	Production of IL-6	<p>for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>IL-6 FMA<sup>T</sup>. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention</p>
340	HMSFS21	1287	Production of ICAM-1	

				(including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).
341	HMSG14	1288	Activation of transcription through AP1 response element in immune cells (such as T-cells).	Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
342	HMSGT42	1289	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500

343	HMSHM14	1290	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>(1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
343	HMSHM14	1290	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used</p>

343	HMSHM14	1290	Production of MCP-1	<p>according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>MCP-1 FMA1. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
344	HMSHS36	1291	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according</p>

344	HMSHS36	1291	<p>to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
344	HMSHS36	1291	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T</p>

			transcription through NFAT response element in immune cells (such as natural killer cells).	cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
344	HMSHS36	1291	Activation of transcription through serum response element in immune cells (such as natural killer cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
345	HMSJM65	1292	Production of IL-6	IL-6 F/MAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6

346	HMSJU68	1293	<p>participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by</p>
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346	HMSJU68	1293	Regulation of apoptosis of immune cells (such as mast cells).	<p>reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFkB responsive element in EOL-1 cells) may link the NFkB element to a reporter gene and binds to the NFkB transcription factor, which is upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E -antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
346	HMSJU68	1293	Activation of Skeletal Muscle Cell PI3 Kinase Signalling Pathway	<p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or</p>



347	HMSKC04	1294	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
347	HMSKC04	1294	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention)</p>

347	HMSKC04	1294	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of</p>
347	HMSKC04	1294	Activation of transcription through	

347	HMSKC04	1294	AP1 response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p>
347	HMSKC04	1294	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
347	HMSKC04	1294	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary</p>

347	HMSKC04	1294	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
347	HMSKC04	1294	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention</p>

347	HMSKC04	1294	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>(including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>
347	HMSKC04	1294	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>

347	HMSKC04	1294	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
348	HMTBI36	1295	Activation of transcription through NFKB response element in immune cells (such as EOL1 cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al.,</p>

348	HMTBI36	1295	Activation of Skeletal Muscle Cell PI3 Kinase Signalling Pathway	<p>Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Arambourau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFkB responsive element in EOL-1 cells) may link the NFkB element to a reporter gene and binds to the NFkB transcription factor, which is upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
349	HMUAP70	1296	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>

350	HMVBN46	1297	Production of IFN $\gamma$ using a T cells	<p>disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely</p>
351	HMWEB02	1298	Activation of transcription through	



352	HMWFO02	1299	<p>GAS response element in immune cells (such as T-cells).</p>	<p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
			<p>Production of IL-4</p>	<p>IL-4 FMAAT. Assays for immunomodulatory proteins secreted by TH2 cells that stimulate B cells, T cells, macrophages and mast cells and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cells, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-4, and the stimulation of immune cells, such as B cells, T cells, macrophages and mast cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):277-283 (1994); Yssel et al., Res Immunol 144(8):610-616 (1993); Bagley et al., Nat Immunol 1(3):257-261 (2000); and van der Graaff et al., Rheumatology (Oxford) 38(3):214-220 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-</p>

				mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.
353	HMWGY65	1300	Activation of T-Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
353	HMWGY65	1300	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in

354	HNEAC05	1301	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
354	HNEAC05	1301	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
355	HNEEB45	1302	Activation of transcription through	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of</p>

355	HNEEB45	1302	<p>cAMP response element (CRE) in pre-adipocytes.</p> <p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
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355	HNEEB45	1302	Activation of transcription through NFKB response element in immune cells (such as EOL1 cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFKB responsive element in EOL-1 cells) may link the NFKB element to a reporter gene and binds to the NFKB transcription factor, which is upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p>
355	HNEEB45	1302	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVCE))	<p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVCE), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
356	HNFFC43	1303	Regulation of	Assays for the regulation of transcription through the DMEF1 response element are

			transcription via DMEF1 response element in adipocytes and pre-adipocytes	<p>well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p>
356	HNF4C43	1303	Proliferation of immune cells (such as the HMC-1 human mast cell line)	<p>Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of eosinophil cells and cell lines. For example, the CellTiter-Glo<sup>®</sup> Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Mast cells are found in connective and mucosal tissues throughout the body. Mast cell activation (via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines) is an important component of allergic disease.</p>

356	HNFFC43	1303	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Mast cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary mast cells that may be used according to these assays include HMC-1, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
356	HNFFC43	1303	Regulation of Malic transcription of Malic Enzyme in adipocytes	<p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and ME<sub>2</sub> identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeper, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J</p>

357	HNFIU96	1304	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
358	HNFIJF07	1305	Regulation of transcription via DMEF1 response element in adipocytes and pre-adipocytes	<p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription</p>



358	HNF1F07	1305	<p>factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p> <p>Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Friedrichsen BN, et al., Mol Endocrinol, 15(1):136-48 (2001); Huotari MA, et al., Endocrinology, 139(4):1494-9 (1998); Hugi SR, et al., J Biol Chem 1998 Jul 10;273(28):17771-9 (1998), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these</p>
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358	HNFJF07	1305	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of naive pancreatic beta cells including glucose inducible insulin secretion. References: Afari et al. Endocrinology 1992 130:167.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
358	HNFJF07	1305	Stimulation of insulin secretion from pancreatic beta cells.	<p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., Am J Physiol, 277(4 Pt 2):R959-66 (1999); Li, M., et al., Endocrinology, 138(9):3735-40 (1997); Kim, K.H., et al., FEBS Lett, 377(2):237-9 (1995); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established</p>

359	HNF1H45	1306	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
359	HNF1H45	1306	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its</p>

359	HNFJH45	1306	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
360	HNGAK47	1307	Endothelial Cell Apoptosis	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in</p>

360	HNGAK47	1307	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
361	HNGAP93	1308	Production of ICAM-1	
362	HNGBC07	1309	Activation of	Assays for the activation of transcription through the Serum Response Element (SRE)

363	HNGBT31	1310	transcription through serum response element in immune cells (such as natural killer cells).	are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.
364	HNGDG40	1311	Activation of transcription through NFKB response element in immune cells (such as T-cells).	Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOL.T4, that may be used according to these assays are publicly available (e.g., through the ATCC).
			Activation of Endothelial Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase

				<p>activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
365	HNGDJ72	1312	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
365	HNGDJ72	1312	Production of TNF alpha by dendritic cells	<p>TNF<math>\alpha</math> FMT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in</p>

365	HNGDJ72	1312	Production of MIP1alpha	<p>the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFa), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
365	HNGDJ72	1312	Production of MIP1alpha	<p>MIP-1alpha FMT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that</p>



365	HNGDJ72	1312	Production of IL-6	<p>may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
365	HNGDJ72	1312	Production of IL-8 by endothelial cells (such as Human Umbilical Cord Endothelial Cells).	<p>Assays measuring production of IL-8 are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8. For example, FMAAT may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate production and/or secretion of IL-8 from endothelial cells (such as human umbilical vein endothelial cells (HUVEC)). HUVECs</p>

365	HNGDJ72	1312	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Endothelial cells play a pivotal role in the initiation and perpetuation of inflammation and secretion of IL-8 may play an important role in recruitment and activation of immune cells such as neutrophils, macrophages, and lymphocytes.</p> <p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVEC), and are available from commercial sources. The expression of ICAM (CD54),<sup>a</sup> integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p>
365	HNGDJ72	1312	Upregulation of HLA-DR and activation of T cells	<p>HLA-DR FMAT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases (e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the</p>

				<p>invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
365	HNGDJ72	1312	Upregulation of CD71 and activation of T cells	<p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
366	HNGDU40	1313	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152</p>

367	HNGEO29	1314	<p>may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response</p>
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368	HNGEP09	1315	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
368	HNGEP09	1315	Upregulation of HLA-DR and activation of T cells	<p>HLA-DR FMAT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases (e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention</p>

369	HNGHR74	1316	Upregulation of CD71 and activation of T cells	<p>(including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that</p>
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370	HNGIH43	1317	Production of MCP-1	<p>mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Satthaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
370	HNGIH43	1317	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA</p>

370	HNGIH43	1317	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
371	HNGIJ31	1318	Activation of transcription through cAMP response element in immune	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate</p>



			cells (such as T-cells).	expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.
371	HNGIJ31	1318	Production of MCP-1	MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
371	HNGIJ31	1318	Stimulation of insulin secretion from pancreatic beta cells.	Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion.

371	HNGIJ31	1318	Activation of Skeletal Muscle Cell PI3 Kinase Signalling Pathway	<p>For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., <i>Am J Physiol</i>, 277(4 Pt 2):R959-66 (1999); Li, M., et al., <i>Endocrinology</i>, 138(9):3735-40 (1997); Kim, K.H., et al., <i>FEBS Lett</i>, 377(2):237-9 (1995); and, Miraglia S et al., <i>Journal of Biomolecular Screening</i>, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. <i>Endocrinology</i> 1992 130:167.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Nikoulina et al., <i>Diabetes</i> 49(2):263-271 (2000); and Schreyer et al., <i>Diabetes</i> 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely</p>
372	HNGIQ46	1319	Activation of JNK Signaling Pathway in	

		immune cells (such as eosinophils).	<p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention</p>
373	HNGJE50	1320	Production of IL-6

373	HNGJE50	1320	Insulin Secretion	<p>(including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., Endocr J, 47(3):261-9 (2000); Salapatek, A.M., et al., Mol Endocrinol, 13(8):1305-17 (1999); Filipsson, K., et al., Ann N Y Acad Sci, 865:441-4 (1998); Olson, L.K., et al., J Biol Chem, 271(28):16544-52 (1996); and, Miraglia S et. al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT T15 Cells. HIT T15 are an adherent epithelial cell line established from Syrian hamster islet cells transfected with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and</p>
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374	HNGJ057	1321	Production of TNF alpha by dendritic cells	<p>glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>TNFα FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test</p>
375	HNGJP69	1322	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	

				<p>cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
375	HNGJP69	1322	Activation of transcription through serum response element in pre-adipocytes.	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
375	HNGJP69	1322	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used</p>

375	HNGJP69	1322	<p>or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm,</p>

<p>Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>				
<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>	<p>Activation of transcription through NFAT response element in immune cells (such as mast cells).</p>	1322	HNGJP69	375
<p>This reporter assay measures activation of the NFkB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to</p>	<p>Activation of transcription through NFkB response</p>	1322	HNGJP69	375



			<p>assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al, Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p>
376	HNGJT54	1323	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
376	HNGJT54	1323	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes</p>

376	HNGJT54	1323	Production of MCP-1	<p>involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>MCP-1 F/MAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Satthaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
377	HNGKN89	1324	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-</p>

377	HNGKN89	1324	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available</p>
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377	HNGKN89	1324	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>(e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-</p>
378	HNGOM36	1325	Activation of transcription through serum response element in immune cells (such as T-cells).	

379	HNGOU56	1326	Protection from Endothelial Cell Apoptosis.	<p>368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
380	HNGOW62	1327	Protection from Endothelial Cell Apoptosis.	<p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which</p>

381	HNHAH01	1328	Production of ICAM-1	<p>are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al. <i>FASEB J</i>, 15(2):279-281 (2001); and, Miyamoto K, et al., <i>Am J Pathol</i>, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
382	HNHCX60	1329	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Reusch et al., <i>Mol Cell Biol</i> 20(3):1008-1020 (2000); and Klemm et al., <i>J Biol Chem</i> 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like</p>

382	HNHCX60	1329	Activation of transcription through API response element in immune cells (such as T-cells).	conversion under appropriate differentiation conditions known in the art. Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
383	HNHCY64	1330	Production of IFNgamma using a T cells	IFNgamma FMAT. IFNg plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFNg promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFNg), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford)

384	HNHCY94	1331	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-</p>
385	HNHDW38	1332	Upregulation of CD71 and activation of T cells	<p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-</p>



386	HNHDW42	1333	Production of IL-6	<p>204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for</p>
386	HNHDW42	1333	Upregulation of CD69 and activation of T cells	

<p>immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>				<p>immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>	<p>Production of IL-6</p>	<p>1334</p>	<p>HNHED17</p>	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays</p>

388	HNHF142	1335	Production of GM-CSF	<p>disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>GM-CSF FMAT. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do not bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p>
389	HNHF029	1336	Regulation (inhibition or activation) of	<p>The mixed lymphocyte reaction assay (MLR) (see e.g., Example: "Detection of Inhibition of a Mixed Lymphocyte Reaction" below) is a complex in vitro assay of T-</p>

390	HNHFR04	1337	immune cell proliferation.	<p>cell responsiveness and immune cell activation. This assay is useful, for example, as an in vitro model of allograft rejection and graft versus host disease. In this assay PBMCs from human donors are mixed, cultured, and monitored for thymidine incorporation (a measure of cell proliferation) to identify polypeptides of the invention (including antibodies and agonists or antagonists of the invention) that may activate or inhibit immune responses.</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Arambourau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFkB responsive element in EOL-1 cells) may link the NFkB element to a reporter gene and binds to the NFkB transcription factor, which is upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p>
390	HNHFR04	1337	Activation of Skeletal Muscle Cell PI3 Kinase Signalling Pathway	<p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem</p>

390	HNHF04	1337	Activation of transcription through NFKB response element in neuronal cells (such as SKNMC cells).	<p>379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of neuronal genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Gill JS, et al., Neurobiol Dis, 7(4):448-461 (2000); Tamatani M, et al., J Biol Chem, 274(13):8531-8538 (1999); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al., Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Neuronal cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary neuronal cells that may be used according to these assays include the SKNMC neuronal cell line.</p>
391	HNHFU32	1338	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>

392	HNHOD46	1339	Activation of Adipocyte ERK Signaling Pathway	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely</p>
392	HNHOD46	1339	Regulation of transcription via DMEF1 response element in adipocytes and pre-adipocytes	

392	HNHOD46	1339	<p>modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M. V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p>
			<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte</p>

392	HNHOD46	1339	Activation of transcription through serum response element in pre-adipocytes.	<p>cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
392	HNHOD46	1339	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are</p>



392	HNHOD46	1339	Activation of transcription through serum response element in immune cells (such as T-cells).	publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells. Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
392	HNHOD46	1339	Production of MIP-1 $\alpha$	MIP-1 $\alpha$ FMAAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 $\alpha$ (MIP-1 $\alpha$ ), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed

392	HNHOD46	1339	Production of IL-6	<p>herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be</p>
392	HNHOD46	1339	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	

392	HMHOD46	1339	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
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392	HNHOD46	1339	Activation of transcription through cAMP response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, bind to CREB transcription factor, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>
392	HNHOD46	1339	Activation of transcription through NFAT response in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p>

392	HNHOD46	1339	Activation of transcription through NFKB response element in immune cells (such as basophils).	<p>This reporter assay measures activation of the NFKB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al., Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p>
392	HNHOD46	1339	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOL.T4 cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
392	HNHOD46	1339	Activation of transcription through	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of</p>

392	HNHOD46	1339	NFKB response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
392	HNHOD46	1339	Activation of transcription through NFKB response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including</p>

392	HNHOD46	1339	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 3(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
392	HNHOD46	1339	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>

392	HNHOD46	1339	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation</p>
392	HNHOD46	1339	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation</p>



392	HNHOD46	1339	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
392	HNHOD46	1339	Activation of serum response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through</p>

393	HNHOG73	1340	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the NFκB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFκB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFκB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFκB response element that may be used or routinely modified to test NFκB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene</p>
393	HNHOG73	1340	Activation of transcription through NFκB response element in immune cells (such as basophils).	

393	HNHOG73	1340	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al, Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
394	HNHPD10	1341	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test</p>

394	HNHPD10	1341	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1</p>
394	HNHPD10	1341	Activation of	

			transcription through NFAT response element in immune cells (such as mast cells).	<p>human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
395	HNTBI57	1342	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and</p>

396	HNTCE26	1343	Production of TNF alpha by dendritic cells	<p>Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>TNF<math>\alpha</math> FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(1):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary</p>
396	HNTCE26	1343	Stimulation of insulin secretion from pancreatic beta cells.	

396	HNTCE26	1343	Production of ICAM-1	assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., Am J Physiol, 277(4 Pt 2):R959-66 (1999); Li, M., et al., Endocrinology, 138(9):3735-40 (1997); Kim, K.H., et al., FEBS Lett, 377(2):237-9 (1995); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.
396	HNTCE26	1343	Upregulation of CD69 and activation of T cells	Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC). CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or

397	HNTNC20	1344	Activation of Adipocyte ERK Signaling Pathway	<p>antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1</p>
398	HNTNI01	1345	Regulation of transcription via DMEF1 response element in adipocytes and pre-adipocytes	



398	HNTN101	1345	<p>response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p>
			<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell</p>

398	HNTN101	1345	Activation of transcription through serum response element in pre-adipocytes.	<p>Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
398	HNTN101	1345	Activation of transcription through GAS response element in immune cells (such as eosinophils).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate gene expression (commonly via STAT transcription factors) involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>

398	HNTN101	1345	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Maitikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995); the contents of each of which are herein incorporated by reference in its entirety. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate or inhibit activation of immune cells include assays disclosed and/or cited in: Mayumi M., "EoL-1, a human eosinophilic cell line" Leuk Lymphoma; Jun;7(3):243-50 (1992); Bhattacharya S, "Granulocyte macrophage colony-stimulating factor and interleukin-5 activate STAT5 and induce CIS1 mRNA in human peripheral blood eosinophils" Am J Respir Cell Mol Biol; Mar;24(3):312-6 (2001); and, Du J, et al., "Engagement of the CrkL adapter in interleukin-5 signaling in eosinophils" J Biol Chem; Oct 20;275(42):33167-75 (2000); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are a type of immune cell important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Increases in GAS mediated transcription in eosinophils is typically a result of STAT activation, normally a direct consequence of interleukin or other cytokine receptor stimulation (e.g. IL3, IL5 or GMCSF).</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFkB responsive element in EoL-1 cells) may link the NFkB element to a reporter gene and binds to the NFkB transcription factor, which is</p>
			<p>Activation of transcription through NFkB response element in immune cells (such as EoL1 cells).</p>

398	HNTNI01	1345	Regulation of transcription of Malic Enzyme in adipocytes	<p>upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p> <p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and ME<sub>2</sub> identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeper, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p>
398	HNTNI01	1345	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention)</p>

398	HNTNI01	1345	<p>include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
398	HNTNI01	1345	<p>Activation of transcription through NFAT response element in immune cells (such as mast cells).</p> <p>Activation of transcription through</p>
398	HNTNI01	1345	<p>Activation of transcription through</p> <p>This reporter assay measures activation of the NFkB signaling pathway in HMC-1 human mast cell line. Activation of NFkB in mast cells has been linked to production</p>

398	HNTN101	NFKB response element in immune cells (such as mast cells).	<p>of certain cytokines, such as IL-6 and IL-9. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Stassen et al., J Immunol 166(7):4391-8 (2001); and Marquardt and Walker, J Allergy Clin Immunol 105(3):500-5 (2000), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
1345		Activation of transcription through STAT6 response element in immune cells (such as mast cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element in immune cells (such as in the human HMC-1 mast cell line) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Sherman, Immunol Rev 179:48-56 (2001); Malaviya and Uckun, J Immunol 168:421-426 (2002); Masuda et al., J Biol Chem 275(38):29331-29337 (2000); and Masuda et al., J Biol Chem 276:26107-26113 (2001), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line</p>

398	HNTNI01	1345	Activation of transcription through NFKB response element in immune cells (such as basophils).	<p>established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFKB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al, Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to bind the serum response factor and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
398	HNTNI01	1345	Activation of transcription through serum response element in immune cells (such as T-cells).	

398	HNTNI01	1345	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
398	HNTNI01	1345	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
398	HNTNI01	1345	Activation of transcription through	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely</p>



399	HNTSY18	1346	NFAT response element in immune cells (such as natural killer cells).	<p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Nikoulina et al., Diabetes 49(2):263-271 (2000); and Schreyer et al., Diabetes 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
400	HOAAC90	1347	Activation of transcription through	<p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of</p>

400	HOAAC90	1347	CD28 response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
401	HOACB38	1348	Production of IL-6	<p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly</p>

402	HOCNF19	1349	Activation of Adipocyte ERK Signaling Pathway	<p>regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like</p>
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402	HOCNF19	1349	Production of IL-4	conversion under appropriate differentiation conditions known in the art. IL-4 FMAT. Assays for immunomodulatory proteins secreted by TH2 cells that stimulate B cells, T cells, macrophages and mast cells and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cells, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-4, and the stimulation of immune cells, such as B cells, T cells, macrophages and mast cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):277-283 (1994); Yssel et al., Res Immunol 144(8):610-616 (1993); Bagley et al., Nat Immunol 1(3):257-261 (2000); and van der Graaff et al., Rheumatology (Oxford) 38(3):214-220 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.
402	HOCNF19	1349	Upregulation of HLA-DR and activation of T cells	HLA-DR FMAT. MHC class II is essential for correct presentation of antigen to CD4+ T cells. Deregulation of MHC class II has been associated with autoimmune diseases (e.g., diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis). Assays for immunomodulatory proteins expressed on MHC class II expressing T cells and antigen presenting cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of MHC class II products, such as HLA-DR antigens, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of

403	HODDF13	1350	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Lamour et al., Clin Exp Immunol 89(2):217-222 (1992); Hurme and Sihvola, Immunol Lett 20(3):217-222 (1989); Gansbacher and Zier, Cell Immunol 117(1):22-34 (1988); and Itoh et al., J Histochem Cytochem 40(11):1675-1683, the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the regulation of transcription through the FAS promoter element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the FAS promoter element in a reporter construct and to regulate transcription of FAS, a key enzyme for lipogenesis. FAS promoter is regulated by many transcription factors including SREBP. Insulin increases FAS gene transcription in livers of diabetic mice. This stimulation of transcription is also somewhat glucose dependent. Exemplary assays that may be used or routinely modified to test for FAS promoter element activity (in hepatocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Xiong, S., et al., Proc Natl Acad Sci U.S.A., 97(8):3948-53 (2000); Roder, K., et al., Eur J Biochem, 260(3):743-51 (1999); Oskouian B, et al., Biochem J, 317 (Pt 1):257-65 (1996); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays, such as H4IIE cells, are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays include rat liver hepatoma cell line(s) inducible with glucocorticoids, insulin, or cAMP derivatives.</p>
403	HODDF13	1350	<p>Regulation of transcription through the FAS promoter element in hepatocytes</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the</p>

403	HODDF13	1350	<p>element in immune cells (such as mast cells).</p>	<p>GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
			<p>Activation of transcription through NFAT response element in immune cells (such as mast cells).</p>	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its</p>

404	HODDN65	1351	Production of ICAM-1	<p>entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, <i>FASEB J</i>, 15(2):279-281 (2001); and, Miyamoto K, et al., <i>Am J Pathol</i>, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
405	HODDN92	1352	Production of MIP1alpha	<p>MIP-1alpha FMAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, <i>J R Coll Surg Ednb</i> 45(1):9-19 (2001); Drakes et al., <i>Transp Immunol</i> 8(1):17-29 (2000); Verhasselt et al., <i>J Immunol</i> 158:2919-2925 (1997); and Nardelli et al., <i>J Leukoc Biol</i> 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate</p>

405	HODDN92	1352	Production of MCP-1	<p>and upregulate T cell proliferation and functional activities.</p> <p>MCP-1 F/MAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Erenin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
405	HODDN92	1352	Production of IL-6	<p>IL-6 F/MAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention</p>



405	HODDN92	1352	Regulation of transcription through the FAS promoter element in hepatocytes	<p>(including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the regulation of transcription through the FAS promoter element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the FAS promoter element in a reporter construct and to regulate transcription of FAS, a key enzyme for lipogenesis. FAS promoter is regulated by many transcription factors including SREBP. Insulin increases FAS gene transcription in livers of diabetic mice. This stimulation of transcription is also somewhat glucose dependent. Exemplary assays that may be used or routinely modified to test for FAS promoter element activity (in hepatocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Xiong, S., et al., Proc Natl Acad Sci U.S.A., 97(8):3948-53 (2000); Roder, K., et al., Eur J Biochem, 260(3):743-51 (1999); Oskouian B, et al., Biochem J, 317 (Pt 1):257-65 (1996); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays, such as H4IIE cells, are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays include rat liver hepatoma cell line(s) inducible with glucocorticoids, insulin, or cAMP derivatives.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and</p>
405	HODDN92	1352	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	

405	HODDN92	1352	<p>modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line</p>
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405	HODDN92	1352	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); McGuire and Iacobelli, <i>J Immunol</i> 159(3):1319-1327 (1997); Parra et al., <i>J Immunol</i> 166(4):2437-2443 (2001); and Butscher et al., <i>J Biol Chem</i> 3(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a</p>
406	HODDO08	1353	Activation of transcription through CD28 response element in immune cells (such as T-cells).	

407	HODDW40	1354	Production of MIP1alpha	<p>suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>MIP-1alpha FMT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J</p>
407	HODDW40	1354	Regulation of apoptosis of immune cells (such as mast cells).	

408	HODEJ32	1355	Activation of Skeletal Muscle Cell P13 Kinase Signalling Pathway	<p>Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p> <p>Kinase assay. Kinase assays, for example an GSK-3 kinase assay, for P13 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for P13 kinase activity that may be used or routinely modified to test P13 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Nikoulina et al., <i>Diabetes</i> 49(2):263-271 (2000); and Schreyer et al., <i>Diabetes</i> 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Rat myoblast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat myoblast cells that may be used according to these assays include L6 cells. L6 is an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuses to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
409	HODFN71	1356	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Benson et al., <i>J Immunol</i> 153(9):3862-3873 (1994); and Black et al., <i>Virus Genes</i> 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety.</p>

409	HODFN71	1356	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to bind the serum response factor and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
409	HODFN71	1356	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curjel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural</p>

409	HODFN71	1356	Activation of transcription through CD28 response element in immune cells (such as T-cells).	<p>killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
409	HODFN71	1356	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
409	HODFN71	1356	Activation of transcription through	<p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely</p>

409	HODFN71	1356	NFAT response element in immune cells (such as natural killer cells).	<p>modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of</p>
410	HODGE68	1357	Activation of transcription through	



			serum response element in immune cells (such as T-cells).	polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.
411	HOEBK34	1358	Activation of transcription through cAMP response element in immune cells (such as T-cells).	Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.
411	HOEBK34	1358	Production of MCP-1	MCP-1 FMAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the

411	HOEBK34	1358	<p>invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Erenin, J R Coll Surg Ednb 45(1):9-19 (2001); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>CD69 FMAT. CD69 is an activation marker that is expressed on activated T cells, B cells, and NK cells. CD69 is not expressed on resting T cells, B cells, or NK cells. CD69 has been found to be associated with inflammation. Assays for immunomodulatory proteins expressed in T cells, B cells, and leukocytes are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD69, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ferenczi et al., J Autoimmun 14(1):63-78 (2000); Werfel et al., Allergy 52(4):465-469 (1997); Taylor-Fishwick and Siegel, Eur J Immunol 25(12):3215-3221 (1995); and Afeira et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are</p>
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411	HOEBK34	1358	Upregulation of CD152 and activation of T cells	primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors. CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.
412	HOEBZ89	1359	Production of IL-4	IL-4 FMAT. Assays for immunomodulatory proteins secreted by TH2 cells that stimulate B cells, T cells, macrophages and mast cells and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cells, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-4, and the stimulation of immune cells,

413	HOEDB32	1360	Production of TNF alpha by dendritic cells	<p>such as B cells, T cells, macrophages and mast cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):277-283 (1994); Yssel et al., Res Immunol 144(8):610-616 (1993); Bagley et al., Nat Immunol 1(3):257-261 (2000); and van der Graaff et al., Rheumatology (Oxford) 38(3):214-220 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>TNF<math>\alpha</math> FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and</p>
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413	HOEDB32	1360	Production of MIP1alpha	functional activities. MIP-1alpha FMAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.
413	HOEDB32	1360	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curriel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which

413	HOEDB32	1360	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
414	HOEDE28	1361	Production of TNF alpha by dendritic cells	<p>TNFα FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593</p>

415	HOEDH84	1362	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>(1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
416	HOEFV61	1363	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention)</p>

417	HOFMQ33	1364	Regulation of viability and proliferation of pancreatic beta cells.	<p>include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ohtani KI, et al., Endocrinology, 139(1):172-8 (1998); Krauthaim A, et al., Exp Clin Endocrinol Diabetes, 107 (1):29-34 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of</p>
417	HOFMQ33	1364	Activation of transcription through	



			serum response element in immune cells (such as T-cells).	polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to bind the serum response factor and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).
418	HOFMT75	1365	Activation of T-Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.
418	HOFMT75	1365	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase

419	HOFNC14	1366	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000);</p>
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420	HOFND85	1367	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Hebrestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary</p>
421	HOFNY91	1368	Activation of transcription through serum response element in immune cells (such as T-cells).	

421	HOFNY91	1368	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUEVC))	<p>mouse T cells that may be used according to these assays include the CTL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUEVC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p>
422	HOFOC33	1369	Activation of transcription through NFKB response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburu et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
423	HOFOC73	1370	Myoblast cell proliferation	<p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast</p>

424	HOGAW62	1371	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
425	HOGCK20	1372	Regulation of apoptosis	Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be

426	HOGCK63	1373	Production of ICAM-1	<p>used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8): 1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
427	HOGCS52	1374	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response</p>

428	HOHBB49	1375	Production of TNF alpha by dendritic cells	<p>element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>TNF<math>\alpha</math> FMA T. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
429	HOHBC68	1376	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote</p>

430	HOHBY12	1377	Production of ICAM-1	<p>or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include Aortic Smooth Muscle Cells (AOSMC); such as bovine AOSMC.</p>
431	HOHBY44	1378	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and</p>



432	HOHCC74	1379	Activation of Natural Killer Cell ERK Signaling Pathway.	<p>Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary natural killer cells that may be used according to these assays include the human natural killer cell lines (for example, NK-YT cells which have cytolytic and cytotoxic activity) or primary NK cells.</p>
433	HOHCH55	1380	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of</p>

434	HONAH29	1381	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
434	HONAH29	1381	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of</p>

435	HOSDJ25	1382	Production of ICAM-1	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., Atherosclerosis, 149(1):99-110 (2000); Panettieri RA Jr, et al., J Immunol, 154(5):2358-2365 (1995); and, Grunstein MM, et al., Am J Physiol Lung Cell Mol Physiol, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include Aortic Smooth Muscle Cells (AOSMC); such as bovine AOSMC.</p>
435	HOSDJ25	1382	Regulation of apoptosis in pancreatic beta cells.	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Apoptosis in pancreatic beta is associated with induction and progression of diabetes. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Loweth, AC, et al., FEBS Lett, 400(3):285-8 (1997); Saini, KS, et al., Biochem Mol Biol Int, 39(6):1229-36 (1996); Krauthaim, A., et al., Br J Pharmacol, 129(4):687-94 (2000); Chandra J, et al., Diabetes, 50 Suppl 1:S44-7</p>

435	HOSDJ25	1382	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>(2001); Suk K, et al., J Immunol, 166(7):4481-9 (2001); Tejedo J, et al., FEBS Lett, 459(2):238-43 (1999); Zhang, S., et al., FEBS Lett, 455(3):315-20 (1999); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include RIN-m. RIN-m is a rat adherent pancreatic beta cell insulinoma cell line derived from a radiation induced transplantable rat islet cell tumor. The cells produce and secrete islet polypeptide hormones, and produce insulin, somatostatin, and possibly glucagon. ATTC: #CRL-2057 Chick et al. Proc. Natl. Acad. Sci. 1977 74:628; AF et al. Proc. Natl. Acad. Sci. 1980 77:3519.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
436	HOSEG51	1383	Production of IL-6	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic</p>

437	HOSFD58	1384	<p>hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell</p>
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438	HOUQC17	1385	Activation of Adipocyte ERK Signaling Pathway	<p>line with cytotoxic activity.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p>
438	HOUQC17	1385	Regulation of proliferation and/or differentiation in immune cells (such as mast cells).	<p>Kinase assays, for example an Elk-1 kinase assay for ERK signal transduction that regulates cell proliferation or differentiation, are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Ali H, et al., J Immunol, 165(12):7215-7223 (2000); Tam SY, et al., Blood, 90(5):1807-1820 (1997); Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Berra et al., Biochem Pharmacol 60(8):1171-1178 (2000); Gupta et al., Exp Cell Res 247(2):495-504 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary immune cells that may be used according to these assays include human mast cells such as the HMC-1 cell line.</p>

438	HOUQC17	1385	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
438	HOUQC17	1385	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236</p>

439	HOUDK26	1386	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>(1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
440	HOVCA92	1387	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in</p>



441	HPASA81	1388	Production of IL-6	<p>Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
442	HPBCU51	1389	Regulation of viability or proliferation of immune cells (such as	<p>Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or</p>

442	HPBCU51	1389	Production of GM-CSF	<p>antagonists of the invention) to regulate viability and proliferation of eosinophil cells and cell lines. For example, the CellTiter-Glo<sup>®</sup> Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA ) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Eosinophils are a type of immune cell important in allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eosinophil cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary eosinophil cells that may be used according to these assays include EOL-1 Cells.</p> <p>GM-CSF FMA.T. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p>
443	HPDDC77	1390	Activation of T-Cell	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell</p>

443	HPDDC77	1390	p38 or JNK Signaling Pathway.	<p>proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Gupta et al., <i>Exp Cell Res</i> 247(2): 495-504 (1999); Kyriakis JM, <i>Biochem Soc Symp</i> 64:29-48 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
			Production of IL-2 and activation of T cells	<p>IL-2 FMA T. IL-2 is the principal T cell factor that allows T cell expansion and differentiation into effector cells. Assays for immunomodulatory proteins secreted by TH1 cells that promote T cell and NK cell growth and differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, promote immune cell growth and differentiation, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-2, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Laduda et al., <i>Immunology</i> 94(4):496-502 (1998); and Powell et al., <i>Immunol Rev</i> 165:287-300 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance</p>

444	HPDWP28	1391	Upregulation of CD152 and activation of T cells	<p>responsiveness to immunomodulatory factors.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oosterveeg et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the</p>
445	HPEAD48	1392	Activation of transcription through NFAT response element in immune cells (such as mast cells).	

				<p>invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
446	HPEBE79	1393	<p>Activation of transcription through GATA-3 response element in immune cells (such as mast cells).</p>	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
447	HPFCL43	1394	<p>Activation of transcription through</p>	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of</p>

448	HPFDG48	1395	serum response element in immune cells (such as T-cells).	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>TNF<math>\alpha</math> FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
448	HPFDG48	1395	Activation of	Assays for the activation of transcription through the Signal Transducers and

449	HPIAQ68	1396	transcription through STAT6 response element in immune cells (such as mast cells).	<p>Activators of Transcription (STAT6) response element in immune cells (such as in the human HMC-1 mast cell line) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Sherman, <i>Immunol Rev</i> 179:48-56 (2001); Malaviya and Uckun, <i>J Immunol</i> 168:421-426 (2002); Masuda et al., <i>J Biol Chem</i> 275(38):29331-29337 (2000); and Masuda et al., <i>J Biol Chem</i> 276:26107-26113 (2001), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
			Production of MCP-1	<p>MCP-1 F/MAT. Assays for immunomodulatory proteins that are produced by a large variety of cells and act to induce chemotaxis and activation of monocytes and T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, induce chemotaxis, and modulate immune cell activation. Exemplary assays that test for immunomodulatory proteins evaluate the production of cell surface markers, such as monocyte chemoattractant protein (MCP), and the activation of monocytes and T cells. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, <i>J R Coll Surg Ednb</i> 45(1):9-19 (2001); and Verhasselt et al., <i>J Immunol</i> 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art.</p>

449	HPIAQ68	1396	Production of IL-6	<p>Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMAAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
450	HPIBO15	1397	Regulation of viability and proliferation of pancreatic beta cells.	<p>Assays for the regulation of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of pancreatic beta cells. For example, the Cell Titer-Glo luminescent cell viability assay measures the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Exemplary assays that may be used or routinely modified to test regulation of viability and proliferation of pancreatic beta cells by polypeptides of</p>



450	HP1BO15	1397	Production of IL-6	<p>the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Friedrichsen BN, et al., Mol Endocrinol, 15(1):136-48 (2001); Huotari MA, et al., Endocrinology, 139(4):1494-9 (1998); Hugi SR, et al., J Biol Chem 1998 Jul 10;273(28):17771-9 (1998), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p> <p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
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451	HPICB53	1398	Endothelial Cell Apoptosis	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
452	HPJBK12	1399	Insulin Secretion	<p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., Endocr J, 47(3):261-9 (2000); Salapatek, A.M., et al., Mol Endocrinol, 13(8):1305-17 (1999); Filipsson, K., et al., Ann N Y Acad Sci, 865:441-4 (1998); Olson, L.K., et al., J Biol Chem, 271(28):16544-52 (1996); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT-T15 Cells. HIT-T15 are an adherent epithelial cell line established from Syrian hamster islet</p>

452	HPJBK12	1399	Regulation of apoptosis of immune cells (such as mast cells).	<p>cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., J Biol Chem, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., J Exp Med, 192(8):1093-1103 (2000); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
452	HPJBK12	1399	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature</p>

410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.				
453	HPJCL22	1400	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain</p>
453	HPJCL22	1400	Upregulation of CD152 and activation of T cells	

454	HP1CW04	1401	Production of TNF alpha by dendritic cells	<p>T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>TNFα FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when</p>
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455	HPJEX20	1402	Activation of transcription through STAT6 response element in immune cells (such as natural killer cells).	<p>activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary rat natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
456	HPMAI22	1403	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the</p>

456	HPMAI22	1403	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOLT4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p>
457	HPMFP40	1404	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line.</p>

458	HPMGJ45	1405	Upregulation of CD152 and activation of T cells	<p>which is an IL-2 dependent suspension culture of T cells with cytotoxic activity. CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell</p>
459	HPQAC69	1406	Upregulation of CD152 and activation of T cells	<p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell</p>



460	HPBC80	1407	<p>surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
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460	HPRBC80	1407	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
460	HPRBC80	1407	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the AP1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays are publicly available (e.g., through</p>

460	HPRBC80	1407	Activation of transcription through NFAT response element in immune cells (such as T-cells).	<p>the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is an IL-2 and IL-4 responsive suspension-culture cell line.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
460	HPRBC80	1407	Activation of transcription through NFKB response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117 (1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a</p>

460	HPRBC80	1407	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Aramburu et al., <i>J Exp Med</i> 182(3):801-810 (1995); De Boer et al., <i>Int J Biochem Cell Biol</i> 31(10):1221-1236 (1999); Fraser et al., <i>Eur J Immunol</i> 29(3):838-844 (1999); and Yeseen et al., <i>J Biol Chem</i> 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
460	HPRBC80	1407	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Benson et al., <i>J Immunol</i> 153(9):3862-3873 (1994); and Black et al., <i>Virus Genes</i> 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>

461	HPRBF19	1408	Activation of transcription through NFKB response element in neuronal cells (such as SKNMC cells).	activity. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of neuronal genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Gill JS, et al., Neurobiol Dis, 7(4):448-461 (2000); Tamatani M, et al., J Biol Chem, 274(13):8531-8538 (1999); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Neuronal cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary neuronal cells that may be used according to these assays include the SKNMC neuronal cell line.
462	HPTTG19	1409	Endothelial Cell Apoptosis	Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune

463	HPTVX32	1410	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	cell extravasation. This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.
464	HPVAB94	1411	Activation of transcription through NFAT response element in immune cells (such as T-cells).	Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-

465	HPWAY46	1412	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that</p>
465	HPWAY46	1412	Activation of transcription through NFAT response element in immune cells (such as mast cells).	

465	HPWAY46	1412	<p>may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the CD28 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate IL-2 expression in T cells. Exemplary assays for transcription through the CD28 response element that may be used or routinely modified to test CD28-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); McGuire and Iacobelli, J Immunol 159(3):1319-1327 (1997); Parra et al., J Immunol 166(4):2437-2443 (2001); and Butscher et al., J Biol Chem 273(1):552-560 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or</p>
465	HPWAY46	1412	<p>Activation of transcription through CD28 response element in immune cells (such as T-cells).</p>
465	HPWAY46	1412	<p>Activation of transcription through GAS response element in immune cells (such as T-cells).</p>



465	HPWAY46	1412	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT cell line, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include</p>
466	HPWDJ42	1413	Activation of transcription through NFAT response in immune cells (such as T-cells).	

467	HPZAB47	1414	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Serfling et al., Biochim Biophys Acta 1498(1):1-18 (2000); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human T cells that may be used according to these assays include the JURKAT cell line, which is a suspension culture of leukemia cells that produce IL-2 when stimulated.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 and kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of neuronal genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Gill JS, et al., Neurobiol Dis, 7(4):448-461</p>
467	HPZAB47	1414	Activation of transcription through NFKB response element in neuronal cells (such as SKNMC cells).	

467	HPZAB47	1414	Upregulation of CD152 and activation of T cells	<p>(2000); Tamatani M, et al., J Biol Chem, 274(13):8531-8538 (1999); Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al., Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Neuronal cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary neuronal cells that may be used according to these assays include the SKNMC neuronal cell line.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
468	HRAAB15	1415	Activation of T-Cell p38 or JNK Signaling	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or</p>

468	HRAAB15	1415	Pathway.	<p>routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
			Production of IFNgamma using a T cells	<p>IFNgamma FMAT. IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays</p>

				<p>may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
469	HRABA80	1416	Insulin Secretion	<p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and downregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., <i>Endocr J</i>, 47(3):261-9 (2000); Salapatek, A.M., et al., <i>Mol Endocrinol</i>, 13(8):1305-17 (1999); Filipsson, K., et al., <i>Ann N Y Acad Sci</i>, 865:441-4 (1998); Olson, L.K., et al., <i>J Biol Chem</i>, 271(28):16544-52 (1996); and, Miraglia S et al., <i>Journal of Biomolecular Screening</i>, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATCC# CRL-1777 Refs: Lord and Ashcroft. <i>Biochem. J</i> 219: 547-551; Santerre et al. <i>Proc. Natl. Acad. Sci. USA</i> 78: 4339-4343, 1981.</p>
469	HRABA80	1416	Activation of Endothelial Cell ERK Signaling Pathway.	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or</p>

469	HRABA80	1416	Upregulation of CD152 and activation of T cells	<p>antagonists of the invention) include the assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Berra et al., <i>Biochem Pharmacol</i> 60(8):1171-1178 (2000); Gupta et al., <i>Exp Cell Res</i> 247(2):495-504 (1999); Chang and Karin, <i>Nature</i> 410(6824):37-40 (2001); and Cobb MH, <i>Prog Biophys Mol Biol</i> 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>CD152 FMAT. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., <i>Immunol Cell Biol</i> 77(1):1-10 (1999); Oostervegal et al., <i>Curr Opin Immunol</i> 11(3):294-300 (1999); and Saito T, <i>Curr Opin Immunol</i> 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
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470	HRACD15	1417	Regulation of Malic Enzyme in hepatocytes	<p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MEEd identified as putative PPAR response elements. ME promoter may also respond to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in hepatocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeper, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the mouse 3T3-L1 cell line. 3T3-L1 is a mouse preadipocyte cell line (adherent). It is a continuous substrain of 3T3 fibroblasts developed through clonal isolation. Cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p>
470	HRACD15	1417	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its</p>

470	HRACD15	1417	Regulation of apoptosis of immune cells (such as mast cells).	<p>entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., <i>J Biol Chem</i>, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., <i>J Exp Med</i>, 192(8):1093-1103 (2000); Lee et al., <i>FEBS Lett</i> 485(2-3): 122-126 (2000); Nor et al., <i>J Vasc Res</i> 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
471	HRACD80	1418	Production of IL-6	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of</p>



472	HRDDV47	1419	Upregulation of CD71 and activation of T cells	<p>cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>CD71 FMAT. CD71 is the transferrin receptor. Transferrin is a major iron carrying protein that is essential for cell proliferation. CD71 is expressed predominantly on cells that are actively proliferating. Assays for immunomodulatory proteins expressed on activated T cells, B cells, and most proliferating cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD71, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Afetra et al., Ann Rheum Dis 52(6):457-460 (1993), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
473	HRDFD27	1420	Activation of transcription through	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of</p>

			serum response element in immune cells (such as T-cells).	polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
473	HRDFD27	1420	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.
473	HRDFD27	1420	Activation of transcription through NFKB response element in immune	Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of

474	HROAJ03	1421	cells (such as natural killer cells).	<p>immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburu et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p>
475	HRTAE58	1422	Production of TNF alpha by dendritic cells	<p>TNF<math>\alpha</math> FMA<math>\alpha</math>T. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of</p>

476	HSATR82	1423	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
477	HSAUK57	1424	Production of IL-6	<p>IL-6 F<math>\mu</math>MT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of</p>

478	HSAUL82	1425		<p>IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
478	HSAUL82	1425	Production of TNF alpha by dendritic cells	<p>TNFα FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNFα), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593</p>

478	HSAUL82	1425	Activation of transcription through NFKB response element in immune cells (such as basophils).	<p>(1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>This reporter assay measures activation of the NFKB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al., Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p>
479	HSAVH65	1426	Activation of T-Cell p38 or JNK Signaling Pathway.	<p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit immune cell (e.g. T-cell) proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature</p>

480	HSA VK10	1427	<p>410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
480	HSA VK10	1427	<p>Activation of transcription through API response element in immune cells (such as T-cells).</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP and regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Genes 15(2):105-117 (1997); and Belkowski et al., J Immunol 161(2):659-665 (1998), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are</p>

480	HSAVK10	1427	Production of MIP1alpha	<p>publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p> <p>MIP-1alpha FMT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., <i>J Biomolecular Screening</i> 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, <i>J R Coll Surg Ednb</i> 45(1):9-19 (2001); Drakes et al., <i>Transp Immunol</i> 8(1):17-29 (2000); Verhasselt et al., <i>J Immunol</i> 158:2919-2925 (1997); and Nardelli et al., <i>J Leukoc Biol</i> 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 FMT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of</p>
480	HSAVK10	1427	Production of IL-6	<p>IL-6 FMT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of</p>



481	HSAWD74	1428	Regulation of transcription via DMEF1 response element in adipocytes and pre-adipocytes	<p>cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEF2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a</p>
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481	HSAWD74	1428	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
482	HSAWZ41	1429	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test</p>

482	HSAWZ41	1429	Activation of transcription through API response element in immune cells (such as T-cells).	<p>cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the API response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the API response element that may be used or routinely modified to test API-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1988); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Rellahan et al., J Biol Chem 272(49):30806-30811 (1997); Chang et al., Mol Cell Biol 18(9):4986-4993 (1998); and Fraser et al., Eur J Immunol 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or</p>
482	HSAWZ41	1429	Activation of transcription through NFkB response element in immune cells (such as EOL1 cells).	

482	HSAWZ41	1429	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Valle Blazquez et al, Immunology 90(3):455-460 (1997); Aramburu et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. For example, a reporter assay (which measures increases in transcription inducible from a NFkB responsive element in EOL-1 cells) may link the NFkB element to a reporter gene and binds to the NFkB transcription factor, which is upregulated by cytokines and other factors. Exemplary immune cells that may be used according to these assays include eosinophils such as the human EOL-1 cell line of eosinophils. Eosinophils are a type of immune cell important in the allergic responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eol-1 is a human eosinophil cell line.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
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482	HSAWZ41	1429	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
482	HSAWZ41	1429	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Hentinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the SUPT</p>

482	HSAWZ41	1429	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	cell line, that may be used according to these assays are publicly available (e.g., through the ATCC). Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.
482	HSAWZ41	1429	Activation of transcription through serum response element in immune cells (such as natural killer cells).	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic

483	HSAXA83	1430	Activation of transcription through serum response element in immune cells (such as T-cells).	activity. Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.
484	HSA YB43	1431	Endothelial Cell Apoptosis	Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.
485	HSA YM40	1432	Production of IL-6	IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a

				<p>role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p>
485	HSA YM40	1432	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which</p>



486	HSDAJ46	1433	Activation of transcription through NFAT response element in immune cells (such as natural killer cells).	<p>are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Aramburu et al., J Exp Med 182(3):801-810 (1995); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Fraser et al., Eur J Immunol 29(3):838-844 (1999); and Yeseen et al., J Biol Chem 268(19):14285-14293 (1993), the contents of each of which are herein incorporated by reference in its entirety. NK cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human NK cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
487	HSDEK49	1434	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary</p>

487	HSDEK49	1434	Regulation of Malic transcription of Malic Enzyme in adipocytes	<p>mouse T cells that may be used according to these assays include the CTL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MEEd identified as putative PPAR response elements. ME promoter may also respond to API and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeper, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J Biol Chem, 274(25):17997-8004 (1999); Lipenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays include the H4IIE rat liver hepatoma cell line.</p>
488	HSDEK95	1435	Production of IL-6	<p>IL-6 FMAT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test</p>

489	HSDEZ20	1436	Activation of JNK Signaling Pathway in immune cells (such as eosinophils).	<p>immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. JNK kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK kinase activity that may be used or routinely modified to test JNK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Exemplary cells that may be used according to these assays include eosinophils. Eosinophils are important in the late stage of allergic reactions; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Moreover, exemplary assays that may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate signal transduction, cell proliferation, activation, or apoptosis in eosinophils include assays disclosed and/or cited in: Zhang JP, et al., "Role of caspases in dexamethasone-induced apoptosis and activation of c-Jun NH2-terminal kinase and p38 mitogen-activated protein kinase in human eosinophils" Clin Exp Immunol; Oct;122(1):20-7 (2000); Hebestreit H, et al., "Disruption of fas receptor signaling by nitric oxide in eosinophils" J Exp Med; Feb 2;187(3):415-25 (1998); J Allergy Clin Immunol 1999 Sep;104(3 Pt 1):565-74; and, Sousa AR, et al., "In vivo resistance to corticosteroids in bronchial</p>
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490	HSDFW45	1437	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>asthma is associated with enhanced phosphorylation of JUN N-terminal kinase and failure of prednisolone to inhibit JUN N-terminal kinase phosphorylation" J Allergy Clin Immunol; Sep;104(3 Pt 1):565-74 (1999); the contents of each of which are herein incorporated by reference in its entirety.</p> <p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be</p>
490	HSDFW45	1437	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	

490	HSDFW45	1437	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p>
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491	HSDJA15	1438	Activation of Adipocyte PI3 Kinase Signalling Pathway	<p>Kinase assay. Kinase assays, for example an GSK-3 assays, for PI3 kinase signal transduction that regulate glucose metabolism and cell survival are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit glucose metabolism and cell survival. Exemplary assays for PI3 kinase activity that may be used or routinely modified to test PI3 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Forrer et al., <i>Biol Chem</i> 379(8-9):1101-1110 (1998); Nikoulina et al., <i>Diabetes</i> 49(2):263-271 (2000); and Schreyer et al., <i>Diabetes</i> 48(8):1662-1666 (1999), the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Flavell et al., <i>Cold Spring Harb Symp Quant Biol</i> 64:563-571 (1999); Rodriguez-Palmero et al., <i>Eur J Immunol</i> 29(12):3914-3924 (1999); Zheng and Flavell, <i>Cell</i> 89(4):587-596 (1997); and Henderson et al., <i>Mol Cell Biol</i> 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to</p>
491	HSDJA15	1438	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	

491	HSDJA15	1438	Production of IL-5	<p>these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>IL-5 FMAAT. Assays for immunomodulatory proteins secreted by TH2 cells, mast cells, basophils, and eosinophils that stimulate eosinophil function and B cell Ig production and promote polarization of CD4+ cells into TH2 cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, stimulate immune cell function, modulate B cell Ig production, modulate immune cell polarization, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-5, and the stimulation of eosinophil function and B cell Ig production. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Ohshima et al., Blood 92(9):3338-3345 (1998); Jung et al., Eur J Immunol 25(8):2413-2416 (1995); Mori et al., J Allergy Clin Immunol 106(1 Pt 2):558-564 (2000); and Koning et al., Cytokine 9(6):427-436 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p>
492	HSDJJ82	1439	Protection from Endothelial Cell Apoptosis.	<p>Caspase Apoptosis Rescue. Assays for caspase apoptosis rescue are well known in the art and may be used or routinely modified to assess the ability of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to inhibit caspase protease-mediated apoptosis. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis rescue of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Romeo et al., Cardiovasc Res 45(3): 788-794 (2000); Messmer et al., Br J Pharmacol 127(7): 1633-1640 (1999); and J Atheroscler Thromb</p>

493	HSDJL42	1440	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced</p>
494	HSDJM31	1441	Activation of Adipocyte ERK Signaling Pathway	



495	HSDSB09	1442	<p>activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the regulation of transcription through the DMEF1 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to activate the DMEF1 response element in a reporter construct (such as that containing the GLUT4 promoter) and to regulate insulin production. The DMEF1 response element is present in the GLUT4 promoter and binds to MEK2 transcription factor and another transcription factor that is required for insulin regulation of Glut4 expression in skeletal muscle. GLUT4 is the primary insulin-responsive glucose transporter in fat and muscle tissue. Exemplary assays that may be used or routinely modified to test for DMEF1 response element activity (in adipocytes and pre-adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Thai, M.V., et al., J Biol Chem, 273(23):14285-92 (1998); Mora, S., et al., J Biol Chem, 275(21):16323-8 (2000); Liu, M.L., et al., J Biol Chem, 269(45):28514-21 (1994); "Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice", J Biol Chem. 2000 Aug 4;275(31):23666-73; Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Adipocytes and pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include the mouse 3T3-L1 cell line which is an adherent mouse preadipocyte cell line. Mouse 3T3-L1 cells are a</p>
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495	HSDSB09	1442	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	continuous substrain of 3T3 fibroblasts developed through clonal isolation. These cells undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation culture conditions.  Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.
495	HSDSB09	1442	Activation of transcription through serum response element in pre-adipocytes.	Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346

495	HSDSB09	1442	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>(1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p> <p>Assays for the regulation of transcription of Malic Enzyme are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate transcription of Malic Enzyme, a key enzyme in lipogenesis. Malic enzyme is involved in lipogenesis and its expression is stimulated by insulin. ME promoter contains two direct repeat (DR1)-like elements MEp and MEEd identified as putative PPAR response elements. ME promoter may also responds to AP1 and other transcription factors. Exemplary assays that may be used or routinely modified to test for regulation of transcription of Malic Enzyme (in adipocytes) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Streeper, R.S., et al., Mol Endocrinol, 12(11):1778-91 (1998); Garcia-Jimenez, C., et al., Mol Endocrinol, 8(10):1361-9 (1994); Barroso, I., et al., J</p>
495	HSDSB09	1442	Regulation of transcription of Malic Enzyme in adipocytes	

495	HSDSB09	1442	Stimulation of Calcium Flux in pancreatic beta cells.	<p>Biol Chem, 274(25):17997-8004 (1999); Ijpenberg, A., et al., J Biol Chem, 272(32):20108-20117 (1997); Berger, et al., Gene 66:1-10 (1988); and, Cullen, B., et al., Methods in Enzymol. 216:362-368 (1992), the contents of each of which is herein incorporated by reference in its entirety. Hepatocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary hepatocytes that may be used according to these assays includes the H4IIE rat liver hepatoma cell line.</p> <p>Assays for measuring calcium flux are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mobilize calcium. For example, the FLPR assay may be used to measure influx of calcium. Cells normally have very low concentrations of cytosolic calcium compared to much higher extracellular calcium. Extracellular factors can cause an influx of calcium, leading to activation of calcium responsive signaling pathways and alterations in cell functions. Exemplary assays that may be used or routinely modified to measure calcium flux by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Satin LS, et al., Endocrinology, 136(10):4589-601 (1995); Mogami H, et al., Endocrinology, 136(7):2960-6 (1995); Richardson SB, et al., Biochem J, 288 (Pt 3):847-51 (1992); and, Meats, JE, et al., Cell Calcium 1989 Nov-Dec;10(8):535-41 (1989), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATTC# CRL-1777 Refs: Lord and Ashcroft. Biochem. J. 219: 547-551; Santerre et al. Proc. Natl. Acad. Sci. USA 78: 4339-4343, 1981.</p>
495	HSDSB09	1442	Activation of transcription through GATA-3 response element in immune cells (such as mast	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and</p>

495	HSDSB09	1442	cells).	<p>agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to</p>
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495	HSDSB09	1442	Activation of transcription through NFKB response element in immune cells (such as mast cells).	<p>these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFKB signaling pathway in HMC-1 human mast cell line. Activation of NFKB in mast cells has been linked to production of certain cytokines, such as IL-6 and IL-9. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Stassen et al., J Immunol 166(7):4391-8 (2001); and Marquardt and Walker, J Allergy Clin Immunol 105(3):500-5 (2000), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element in immune cells (such as in the human HMC-1 mast cell line) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Sherman, Immunol Rev 179:48-56 (2001); Malaviya and Uckun, J Immunol 168:421-426 (2002); Masuda et al., J Biol</p>
495	HSDSB09	1442	Activation of transcription through STAT6 response element in immune cells (such as mast cells).	

495	HDSB09	1442	Stimulation of insulin secretion from pancreatic beta cells.	<p>Chem 275(38):29331-29337 (2000); and Masuda et al., J Biol Chem 276:26107-26113 (2001), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Ahren, B., et al., Am J Physiol, 277(4 Pt 2):R959-66 (1999); Li, M., et al., Endocrinology, 138(9):3735-40 (1997); Kim, K.H., et al., FEBS Lett, 377(2):237-9 (1995); and, Miraglia S et al., Journal of Biomolecular Screening, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include rat INS-1 cells. INS-1 cells are a semi-adherent cell line established from cells isolated from an X-ray induced rat transplantable insulinoma. These cells retain characteristics typical of native pancreatic beta cells including glucose inducible insulin secretion. References: Asfari et al. Endocrinology 1992 130:167.</p>
495	HDSB09	1442	Activation of transcription through NFKB response element in immune cells (such as basophils).	<p>This reporter assay measures activation of the NFKB signaling pathway in Ku812 human basophil cell line. Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and</p>

495	HSDSB09	1442	Activation of transcription through STAT6 response element in immune cells (such as T-cells).	<p>agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Marone et al, Int Arch Allergy Immunol 114(3):207-17 (1997), the contents of each of which are herein incorporated by reference in its entirety. Basophils that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human basophil cell lines that may be used according to these assays include Ku812, originally established from a patient with chronic myelogenous leukemia. It is an immature prebasophilic cell line that can be induced to differentiate into mature basophils.</p> <p>Assays for the activation of transcription through the Signal Transducers and Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p>
495	HSDSB09	1442	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in</p>



496	HSDSE75	1443	Myoblast cell proliferation	<p>Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p> <p>Assays for muscle cell proliferation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate or inhibit myoblast cell proliferation. Exemplary assays for myoblast cell proliferation that may be used or routinely modified to test activity of polypeptides and antibodies of the invention (including agonists or antagonists of the invention) include, for example, assays disclosed in: Soeta, C., et al. "Possible role for the c-ski gene in the proliferation of myogenic cells in regenerating skeletal muscles of rats" Dev Growth Differ Apr;43(2):155-64 (2001); Ewton DZ, et al., "IGF binding proteins-4, -5 and -6 may play specialized roles during L6 myoblast proliferation and differentiation" J Endocrinol Mar;144(3):539-53 (1995); and, Pampusch MS, et al., "Effect of transforming growth factor beta on proliferation of L6 and embryonic porcine myogenic cells" J Cell Physiol Jun;143(3):524-8 (1990); the contents of each of which are herein incorporated by reference in their entirety. Exemplary myoblast cells that may be used according to these assays include the rat myoblast L6 cell line. Rat myoblast L6 cells are an adherent rat myoblast cell line, isolated from primary cultures of rat thigh muscle, that fuse to form multinucleated myotubes and striated fibers after culture in differentiation media.</p>
496	HSDSE75	1443	Production of IL-6	<p>IL-6 FMA T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention</p>

497	HSDZR57	1444	Activation of Endothelial Cell p38 or JNK Signaling Pathway.	<p>(including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Kinase assay. JNK and p38 kinase assays for signal transduction that regulate cell proliferation, activation, or apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and apoptosis. Exemplary assays for JNK and p38 kinase activity that may be used or routinely modified to test JNK and p38 kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Gupta et al., Exp Cell Res 247(2): 495-504 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are endothelial cells which line venous blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal</p>
498	HSHAX21	1445	Activation of	

498	HSHAX21	1445	Adipocyte ERK Signaling Pathway	transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karn, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.
			Production of TNF alpha by dendritic cells	TNF $\alpha$ FMAT. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF $\alpha$ ), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these

498	HSHAX21	1445	Production of MIP1alpha	<p>assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>MIP-1alpha F/MAT. Assays for immunomodulatory proteins produced by activated dendritic cells that upregulate monocyte/macrophage and T cell chemotaxis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate chemotaxis, and modulate T cell differentiation. Exemplary assays that test for immunomodulatory proteins evaluate the production of chemokines, such as macrophage inflammatory protein 1 alpha (MIP-1a), and the activation of monocytes/macrophages and T cells. Such assays that may be used or routinely modified to test immunomodulatory and chemotaxis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Sathaporn and Eremin, J R Coll Surg Ednb 45(1):9-19 (2001); Drakes et al., Transp Immunol 8(1):17-29 (2000); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the NFkB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFkB transcription factors and modulate expression of immunomodulatory genes. Exemplary assays for transcription through the NFkB response element that may be used or routinely modified to test NFkB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Black et al., Virus Gnes 15(2):105-117</p>
498	HSHAX21	1445	Activation of transcription through NFkB response element in immune cells (such as T-cells).	

499	HSIAS17	1446	Production of TNF alpha by dendritic cells	<p>(1997); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Exemplary human T cells, such as the MOL T4, that may be used according to these assays are publicly available (e.g., through the ATCC).</p> <p>TNF<math>\alpha</math> F<math>\alpha</math> M<math>\alpha</math> T. Assays for immunomodulatory proteins produced by activated macrophages, T cells, fibroblasts, smooth muscle, and other cell types that exert a wide variety of inflammatory and cytotoxic effects on a variety of cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, modulate inflammation and cytotoxicity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines such as tumor necrosis factor alpha (TNF<math>\alpha</math>), and the induction or inhibition of an inflammatory or cytotoxic response. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Verhasselt et al., Eur J Immunol 28(11):3886-3890 (1998); Dahlen et al., J Immunol 160(7):3585-3593 (1998); Verhasselt et al., J Immunol 158:2919-2925 (1997); and Nardelli et al., J Leukoc Biol 65:822-828 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>IL-6 F<math>\alpha</math> M<math>\alpha</math> T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate</p>
499	HSIAS17	1446	Production of IL-6	<p>IL-6 F<math>\alpha</math> M<math>\alpha</math> T. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate</p>

500	HSICV24	1447	<p>immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits</p>
			<p>Activation of transcription through NFAT response element in immune cells (such as mast cells).</p>

501	HSID181	1448	Insulin Secretion	<p>many characteristics of immature mast cells.</p> <p>Assays for measuring secretion of insulin are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to stimulate insulin secretion. For example, insulin secretion is measured by FMAT using anti-rat insulin antibodies. Insulin secretion from pancreatic beta cells is upregulated by glucose and also by certain proteins/peptides, and dysregulation is a key component in diabetes. Exemplary assays that may be used or routinely modified to test for stimulation of insulin secretion (from pancreatic cells) by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Shimizu, H., et al., <i>Endocr J</i>, 47(3):261-9 (2000); Salapatek, A.M., et al., <i>Mol Endocrinol</i>, 13(8):1305-17 (1999); Filipsson, K., et al., <i>Ann N Y Acad Sci</i>, 865:441-4 (1998); Olson, L.K., et al., <i>J Biol Chem</i>, 271(28):16544-52 (1996); and, Miraglia S et al., <i>Journal of Biomolecular Screening</i>, 4:193-204 (1999), the contents of each of which is herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include HIT15 Cells. HIT15 are an adherent epithelial cell line established from Syrian hamster islet cells transformed with SV40. These cells express glucagon, somatostatin, and glucocorticoid receptors. The cells secrete insulin, which is stimulated by glucose and glucagon and suppressed by somatostatin or glucocorticoids. ATCC# CRL-1777</p> <p>Refs: Lord and Ashcroft. <i>Biochem. J</i>. 219: 547-551; Santerre et al. <i>Proc. Natl. Acad. Sci. USA</i> 78: 4339-4343, 1981.</p>
501	HSID181	1448	Activation of transcription through NFKB response element in neuronal cells (such as SKNMC cells).	<p>Assays for the activation of transcription through the NFKB response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFKB transcription factors and modulate expression of neuronal genes. Exemplary assays for transcription through the NFKB response element that may be used or routinely modified to test NFKB-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in: Gill JS, et al., <i>Neurobiol Dis</i>, 7(4):448-461 (2000); Tamatani M, et al., <i>J Biol Chem</i>, 274(13):8531-8538 (1999); Berger et al., <i>Gene</i> 66:1-10 (1998); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Valle Blazquez et al.,</p>

502	HSIDX71	1449	Activation of transcription through GAS response element in immune cells (such as T-cells).	<p>Immunology 90(3):455-460 (1997); Aramburau et al., J Exp Med 82(3):801-810 (1995); and Fraser et al., 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. Neuronal cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary neuronal cells that may be used according to these assays include the SKNMC neuronal cell line.</p> <p>Assays for the activation of transcription through the Gamma Interferon Activation Site (GAS) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT transcription factors and modulate gene expression involved in a wide variety of cell functions. Exemplary assays for transcription through the GAS response element that may be used or routinely modified to test GAS-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Matikainen et al., Blood 93(6):1980-1991 (1999); and Henttinen et al., J Immunol 155(10):4582-4587 (1995), the contents of each of which are herein incorporated by reference in its entirety. Exemplary mouse T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the CTLL cell line, which is a suspension culture of IL-2 dependent cytotoxic T cells.</p>
503	HSJBQ79	1450	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference</p>



504	HSKCP69	1451	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory</p>
504	HSKCP69	1451	Activation of transcription through NFAT response element in immune cells (such as mast cells).	

505	HSKDA27	1452	Production of GM-CSF	<p>functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Tumer et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>GM-CSF FMAT. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer</p>
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505	HSKDA27	1452	Regulation of apoptosis in pancreatic beta cells.	<p>(NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Apoptosis in pancreatic beta is associated with induction and progression of diabetes. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Loweth, AC, et al., FEBS Lett, 400(3):285-8 (1997); Saini, KS, et al., Biochem Mol Biol Int, 39(6):1229-36 (1996); Krauthelm, A., et al., Br J Pharmacol, 129(4):687-94 (2000); Chandra J, et al., Diabetes, 50 Suppl 1:S44-7 (2001); Suk K, et al., J Immunol, 166(7):4481-9 (2001); Tejedo J, et al., FEBS Lett, 459(2):238-43 (1999); Zhang, S., et al., FEBS Lett, 455(3):315-20 (1999); Lee et al., FEBS Lett 485(2-3): 122-126 (2000); Nor et al., J Vasc Res 37(3): 209-218 (2000); and Karsan and Harlan, J Atheroscler Thromb 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Pancreatic cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary pancreatic cells that may be used according to these assays include RIN-m. RIN-m is a rat adherent pancreatic beta cell insulinoma cell line derived from a radiation induced transplantable rat islet cell tumor. The cells produce and secrete islet polypeptide hormones, and produce insulin, somatostatin, and possibly glucagon. ATTC: #CRL-2057 Chick et al. Proc. Natl. Acad. Sci. 1977 74:628; AF et al. Proc. Natl. Acad. Sci. 1980 77:3519.</p>
506	HSKHZ81	1453	Activation of transcription through cAMP response element (CRE) in pre-adipocytes.	<p>Assays for the activation of transcription through the cAMP response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to increase cAMP, regulate CREB transcription factors, and modulate expression of genes involved in a wide variety of cell functions. For example, a 3T3-L1/CRE reporter assay may be used to identify factors that activate the cAMP signaling pathway. CREB plays a major role in adipogenesis, and is involved in differentiation into adipocytes. CRE contains the binding sequence for the</p>

506	HSKHZ81	1453	Production of ICAM-1	<p>transcription factor CREB (CRE binding protein). Exemplary assays for transcription through the cAMP response element that may be used or routinely modified to test cAMP-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Reusch et al., Mol Cell Biol 20(3):1008-1020 (2000); and Klemm et al., J Biol Chem 273:917-923 (1998), the contents of each of which are herein incorporated by reference in its entirety. Pre-adipocytes that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Takacs P, et al, FASEB J, 15(2):279-281 (2001); and, Miyamoto K, et al., Am J Pathol, 156(5):1733-1739 (2000), the contents of each of which is herein incorporated by reference in its entirety. Cells that may be used according to these assays are publicly available (e.g., through the ATCC) and/or may be routinely generated. Exemplary cells that may be used according to these assays include microvascular endothelial cells (MVEC).</p>
507	HSKNB56	1454	Activation of Adipocyte ERK Signaling Pathway	<p>Kinase assay. Kinase assays, for example an Elk-1 Kinase assay, for ERK signal transduction that regulate cell proliferation or differentiation are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to promote or inhibit cell proliferation, activation, and differentiation. Exemplary assays for ERK kinase activity that may be used or routinely modified to test ERK kinase-induced activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Forrer et al., Biol Chem 379(8-9):1101-1110 (1998); Le Marchand-Brustel Y, Exp Clin Endocrinol Diabetes 107(2):126-132 (1999); Kyriakis JM, Biochem Soc Symp 64:29-48 (1999); Chang and</p>

508	HSLCQ82	1455	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>Karin, Nature 410(6824):37-40 (2001); and Cobb MH, Prog Biophys Mol Biol 71(3-4):479-500 (1999); the contents of each of which are herein incorporated by reference in its entirety. Mouse adipocyte cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse adipocyte cells that may be used according to these assays include 3T3-L1 cells. 3T3-L1 is an adherent mouse preadipocyte cell line that is a continuous substrain of 3T3 fibroblast cells developed through clonal isolation and undergo a pre-adipocyte to adipose-like conversion under appropriate differentiation conditions known in the art.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
509	HSLJG37	1456	Production of GM-CSF	<p>GM-CSF FMAT. GM-CSF is expressed by activated T cells, macrophages, endothelial cells, and fibroblasts. GM-CSF regulates differentiation and proliferation of granulocytes- macrophage progenitors and enhances antimicrobial activity in neutrophils, monocytes and macrophage. Additionally, GM-CSF plays an important role in the differentiation of dendritic cells and monocytes, and increases antigen presentation. GM-CSF is considered to be a proinflammatory cytokine. Assays for immunomodulatory proteins that promote the production of GM-CSF are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and modulate the growth and differentiation of leukocytes. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as GM-CSF, and the activation of T cells. Such assays that may be</p>

510	HSODE04	1457	Production of IFN $\gamma$ using a T cells	<p>used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Ye et al., J Leukoc Biol (58(2):225-233, the contents of each of which are herein incorporated by reference in its entirety. Natural killer cells that may be used according to these assays are publicly available (e.g., through the ATCC) or may be isolated using techniques disclosed herein or otherwise known in the art. Natural killer (NK) cells are large granular lymphocytes that have cytotoxic activity but do bind antigen. NK cells show antibody-independent killing of tumor cells and also recognize antibody bound on target cells, via NK Fc receptors, leading to cell-mediated cytotoxicity.</p> <p>IFN<math>\gamma</math> plays a central role in the immune system and is considered to be a proinflammatory cytokine. IFN<math>\gamma</math> promotes TH1 and inhibits TH2 differentiation; promotes IgG2a and inhibits IgE secretion; induces macrophage activation; and increases MHC expression. Assays for immunomodulatory proteins produced by T cells and NK cells that regulate a variety of inflammatory activities and inhibit TH2 helper cell functions are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation, regulate inflammatory activities, modulate TH2 helper cell function, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as Interferon gamma (IFN<math>\gamma</math>), and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); Gonzalez et al., J Clin Lab Anal 8(5):225-233 (1995); Billiau et al., Ann NY Acad Sci 856:22-32 (1998); Boehm et al., Annu Rev Immunol 15:749-795 (1997), and Rheumatology (Oxford) 38(3):214-20 (1999), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express</p>
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511	HSPBF70	1458	Upregulation of CD152 and activation of T cells	<p>a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>CD152 F<sub>MA</sub>T. CD152 (a.k.a. CTLA-4) expression is restricted to activated T cells. CD152 is a negative regulator of T cell proliferation. Reduced CD152 expression has been linked to hyperproliferative and autoimmune diseases. Overexpression of CD152 may lead to impaired immunoresponses. Assays for immunomodulatory proteins important in the maintenance of T cell homeostasis and expressed almost exclusively on CD4+ and CD8+ T cells are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate the activation of T cells, maintain T cell homeostasis, and/or mediate humoral or cell-mediated immunity. Exemplary assays that test for immunomodulatory proteins evaluate the upregulation of cell surface markers, such as CD152, and the activation of T cells. Such assays that may be used or routinely modified to test immunomodulatory activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include, for example, the assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204 (1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); McCoy et al., Immunol Cell Biol 77(1):1-10 (1999); Oostervegal et al., Curr Opin Immunol 11(3):294-300 (1999); and Saito T, Curr Opin Immunol 10(3):313-321 (1998), the contents of each of which are herein incorporated by reference in its entirety. Human T cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human T cells are primary human lymphocytes that mature in the thymus and express a T Cell receptor and CD3, CD4, or CD8. These cells mediate humoral or cell-mediated immunity and may be preactivated to enhance responsiveness to immunomodulatory factors.</p> <p>Assays for the regulation (i.e. increases or decreases) of viability and proliferation of cells in vitro are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate viability and proliferation of eosinophil cells and cell lines. For example, the CellTiter-Glo<sup>®</sup> Luminescent Cell Viability Assay (Promega Corp., Madison, WI, USA) can be used to measure the number of viable cells in culture based on quantitation of the ATP present which signals the presence of metabolically active cells. Eosinophils are a type of immune cell important in allergic</p>
512	HSQEO84	1459	Regulation of viability or proliferation of immune cells (such as human eosinophil EOL-1 cells).	

512	HSQEO84	1459	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>responses; they are recruited to tissues and mediate the inflammatory response of late stage allergic reaction. Eosinophil cell lines that may be used according to these assays are publicly available and/or may be routinely generated. Exemplary eosinophil cells that may be used according to these assays include EOL-1 Cells.</p> <p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of</p>
512	HSQEO84	1459	Activation of transcription through NFAT response element in immune cells (such as mast cells).	



512	HSQE084	1459	Production of VCAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	<p>polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for measuring expression of VCAM are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate VCAM expression. For example, FMAT may be used to measure the upregulation of cell surface VCAM-1 expression in endothelial cells. Endothelial cells are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used according to these assays include human umbilical vein endothelial cells (HUVEC), which are available from commercial sources. The expression of VCAM (CD106), a membrane-associated protein, can be upregulated by cytokines or other factors, and contributes to the extravasation of lymphocytes, leucocytes and other immune cells from blood vessels; thus VCAM expression plays a role in promoting immune and inflammatory responses.</p> <p>Endothelial cells, which are cells that line blood vessels, and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation. Exemplary endothelial cells that may be used in ICAM production assays include human umbilical vein endothelial cells (HUVEC), and are available from commercial sources. The expression of ICAM (CD54), a integral membrane protein, can be upregulated by cytokines or other factors, and ICAM expression is important in mediating immune and endothelial cell interactions leading to immune and inflammatory responses. Assays for measuring expression of ICAM-1 are well-known in the art and may be used or routinely modified to assess the</p>
512	HSQE084	1459	Production of ICAM in endothelial cells (such as human umbilical vein endothelial cells (HUVEC))	

513	HSSAJ29	1460	Activation of transcription through AP1 response element in immune cells (such as T-cells).	<p>ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate ICAM-1 expression. Exemplary assays that may be used or routinely modified to measure ICAM-1 expression include assays disclosed in: Rolfe BE, et al., <i>Atherosclerosis</i>, 149(1):99-110 (2000); Panettieri RA Jr, et al., <i>J Immunol</i>, 154(5):2358-2365 (1995); and, Grunstein MM, et al., <i>Am J Physiol Lung Cell Mol Physiol</i>, 278(6):L1154-L1163 (2000), the contents of each of which is herein incorporated by reference in its entirety.</p> <p>Assays for the activation of transcription through the AP1 response element are known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to modulate growth and other cell functions. Exemplary assays for transcription through the AP1 response element that may be used or routinely modified to test AP1-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., <i>Gene</i> 66:1-10 (1988); Cullen and Malm, <i>Methods in Enzymol</i> 216:362-368 (1992); Henthorn et al., <i>Proc Natl Acad Sci USA</i> 85:6342-6346 (1988); Rellahan et al., <i>J Biol Chem</i> 272(49):30806-30811 (1997); Chang et al., <i>Mol Cell Biol</i> 18(9):4986-4993 (1998); and Fraser et al., <i>Eur J Immunol</i> 29(3):838-844 (1999), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension-culture cell line with cytotoxic activity.</p>
514	HSSDX51	1461	Production of IL-6	<p>IL-6 FMT. IL-6 is produced by T cells and has strong effects on B cells. IL-6 participates in IL-4 induced IgE production and increases IgA production (IgA plays a role in mucosal immunity). IL-6 induces cytotoxic T cells. Deregulated expression of IL-6 has been linked to autoimmune disease, plasmacytomas, myelomas, and chronic hyperproliferative diseases. Assays for immunomodulatory and differentiation factor proteins produced by a large variety of cells where the expression level is strongly regulated by cytokines, growth factors, and hormones are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to mediate immunomodulation and differentiation and modulate T cell proliferation and function. Exemplary assays that test for immunomodulatory proteins evaluate the production of cytokines, such as IL-6, and the stimulation and upregulation of T cell proliferation and</p>

515	HSSFT08	1462	Activation of transcription through serum response element in immune cells (such as T-cells).	<p>functional activities. Such assays that may be used or routinely modified to test immunomodulatory and differentiation activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Miraglia et al., J Biomolecular Screening 4:193-204(1999); Rowland et al., "Lymphocytes: a practical approach" Chapter 6:138-160 (2000); and Verhasselt et al., J Immunol 158:2919-2925 (1997), the contents of each of which are herein incorporated by reference in its entirety. Human dendritic cells that may be used according to these assays may be isolated using techniques disclosed herein or otherwise known in the art. Human dendritic cells are antigen presenting cells in suspension culture, which, when activated by antigen and/or cytokines, initiate and upregulate T cell proliferation and functional activities.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate the serum response factors and modulate the expression of genes involved in growth. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary mouse T cells that may be used according to these assays include the CTLL cell line, which is an IL-2 dependent suspension culture of T cells with cytotoxic activity.</p>
516	HSSGD52	1463	Activation of transcription through GATA-3 response element in immune cells (such as mast cells).	<p>This reporter assay measures activation of the GATA-3 signaling pathway in HMC-1 human mast cell line. Activation of GATA-3 in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the GATA3 response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate GATA3 transcription factors and modulate expression of mast cell genes important for immune response development. Exemplary assays for transcription through the GATA3 response element that may be used or routinely modified to test GATA3-response element activity of polypeptides of</p>

516	HSSGD52	1463	Activation of transcription through NFAT response element in immune cells (such as mast cells).	<p>the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Flavell et al., Cold Spring Harb Symp Quant Biol 64:563-571 (1999); Rodriguez-Palmero et al., Eur J Immunol 29(12):3914-3924 (1999); Zheng and Flavell, Cell 89(4):587-596 (1997); and Henderson et al., Mol Cell Biol 14(6):4286-4294 (1994), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>This reporter assay measures activation of the NFAT signaling pathway in HMC-1 human mast cell line. Activation of NFAT in mast cells has been linked to cytokine and chemokine production. Assays for the activation of transcription through the Nuclear Factor of Activated T cells (NFAT) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate NFAT transcription factors and modulate expression of genes involved in immunomodulatory functions. Exemplary assays for transcription through the NFAT response element that may be used or routinely modified to test NFAT-response element activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); De Boer et al., Int J Biochem Cell Biol 31(10):1221-1236 (1999); Ali et al., J Immunol 165(12):7215-7223 (2000); Hutchinson and McCloskey, J Biol Chem 270(27):16333-16338 (1995), and Turner et al., J Exp Med 188:527-537 (1998), the contents of each of which are herein incorporated by reference in its entirety. Mast cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary human mast cells that may be used according to these assays include the HMC-1 cell line, which is an immature human mast cell line established from the peripheral blood of a patient with mast cell leukemia, and exhibits many characteristics of immature mast cells.</p> <p>Assays for the activation of transcription through the Signal Transducers and</p>
516	HSSGD52	1463	Activation of	

516	HSSGD52	1463	transcription through STAT6 response element in immune cells (such as T-cells).	<p>Activators of Transcription (STAT6) response element are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate STAT6 transcription factors and modulate the expression of multiple genes. Exemplary assays for transcription through the STAT6 response element that may be used or routinely modified to test STAT6 response element activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Georas et al., Blood 92(12):4529-4538 (1998); Moffatt et al., Transplantation 69(7):1521-1523 (2000); Curiel et al., Eur J Immunol 27(8):1982-1987 (1997); and Masuda et al., J Biol Chem 275(38):29331-29337 (2000), the contents of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the SUPT cell line, which is a suspension culture of IL-2 and IL-4 responsive T cells.</p> <p>Assays for the activation of transcription through the Serum Response Element (SRE) are well-known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate serum response factors and modulate the expression of genes involved in growth and upregulate the function of growth-related genes in many cell types. Exemplary assays for transcription through the SRE that may be used or routinely modified to test SRE activity of the polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include assays disclosed in Berger et al., Gene 66:1-10 (1998); Cullen and Malm, Methods in Enzymol 216:362-368 (1992); Henthorn et al., Proc Natl Acad Sci USA 85:6342-6346 (1988); Benson et al., J Immunol 153(9):3862-3873 (1994); and Black et al., Virus Genes 12(2):105-117 (1997), the content of each of which are herein incorporated by reference in its entirety. T cells that may be used according to these assays are publicly available (e.g., through the ATCC). Exemplary T cells that may be used according to these assays include the NK-YT cell line, which is a human natural killer cell line with cytolytic and cytotoxic activity.</p>
517	HSSGG82	1464	Activation of transcription through serum response element in immune cells (such as natural killer cells).	<p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention</p>

518	HSSJC35	1465	Regulation of apoptosis of immune cells (such as mast cells).	<p>(including antibodies and agonists or antagonists of the invention) to promote caspase protease-mediated apoptosis. Induction of apoptosis in endothelial cells supporting the vasculature of tumors is associated with tumor regression due to loss of tumor blood supply. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase activity of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in Lee et al., <i>FEBS Lett</i> 485(2-3): 122-126 (2000); Nor et al., <i>J Vasc Res</i> 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Endothelial cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary endothelial cells that may be used according to these assays include bovine aortic endothelial cells (bAEC), which are an example of endothelial cells which line blood vessels and are involved in functions that include, but are not limited to, angiogenesis, vascular permeability, vascular tone, and immune cell extravasation.</p> <p>Caspase Apoptosis. Assays for caspase apoptosis are well known in the art and may be used or routinely modified to assess the ability of polypeptides of the invention (including antibodies and agonists or antagonists of the invention) to regulate caspase protease-mediated apoptosis in immune cells (such as, for example, in mast cells). Mast cells are found in connective and mucosal tissues throughout the body, and their activation via immunoglobulin E-antigen, promoted by T helper cell type 2 cytokines, is an important component of allergic disease. Dysregulation of mast cell apoptosis may play a role in allergic disease and mast cell tumor survival. Exemplary assays for caspase apoptosis that may be used or routinely modified to test caspase apoptosis activity induced by polypeptides of the invention (including antibodies and agonists or antagonists of the invention) include the assays disclosed in: Masuda A, et al., <i>J Biol Chem</i>, 276(28):26107-26113 (2001); Yeatman CF 2nd, et al., <i>J Exp Med</i>, 192(8):1093-1103 (2000); Lee et al., <i>FEBS Lett</i> 485(2-3): 122-126 (2000); Nor et al., <i>J Vasc Res</i> 37(3): 209-218 (2000); and Karsan and Harlan, <i>J Atheroscler Thromb</i> 3(2): 75-80 (1996); the contents of each of which are herein incorporated by reference in its entirety. Immune cells that may be used according to these assays are publicly available (e.g., through commercial sources). Exemplary immune cells that may be used according to these assays include mast cells such as the HMC human mast cell line.</p>
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